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Catalogue, 1891.

Ryan-McDonald Manufacturing Co.

Manufacturers

DUMP CARS, FLAT CARS, LIGHT LOCOMOTIVES, HOISTING ENGINES, HORSE POWER DRUMS, DERRICK FITTINGS, WINCHES, BOILERS &c.

Contractors Supplies.

Office: 44 South Street, Baltimore, Md.

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WORKS, CURTIS BAY, MD.

Ryan-McDonald Mfg. Co.

MANUFACTURERS OF

Dump Cars, Light Locomotives,

Flat Cars, Hoisting Engines,

Horse Power Drums,

Derrick Fittings, Winches,

Boilers, etc.

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Office, No. 44 South Street,

BALTIMORE, MD.

ISAAC FRIEDENWALD CO., ENG. & PRINT.

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LOCOMOTIVE AND CARS WORKING ON FILL.

CARS FOR TEAM HAULING.

C11-1-1259

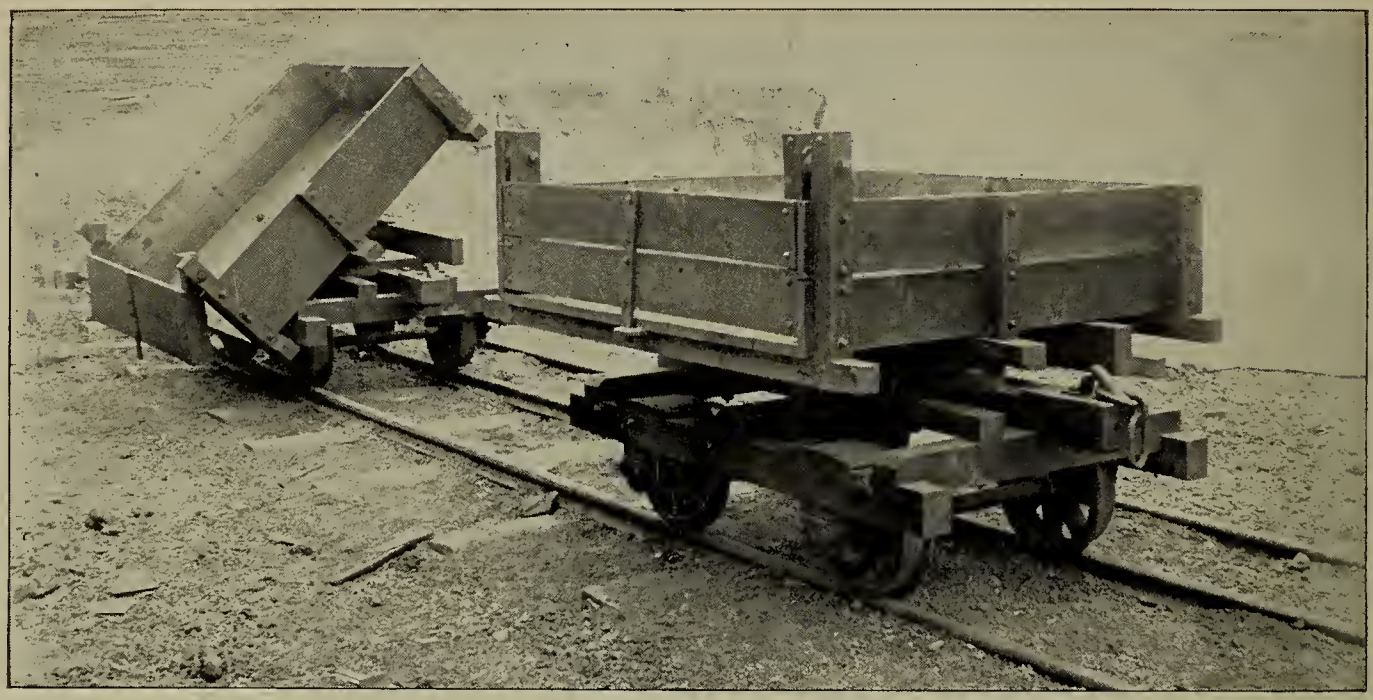
CONTRACTOR'S DUMP CARS.

HAVING been engaged for several years in contract work in many different States in the Union, and extensively in railroad grading and masonry, we have felt the need of thorough-working special machinery, and with this end in view, have improved and are building dump cars of any gauge and capacity, made from select seasoned oak and best iron, for service in grading railroads, parkways, boulevards, landscape gardening, tunneling, stone quarries, brick yards, lime works, gravel pits, plantations, levee and dock building, coal and ore docks, peat works, etc.

In most cases where filling of any considerable magnitude is to be made, a contractor will find it the cheapest and best plan to build a trestle across the fill and use trains of side dumpers. Most large contractors follow this plan, and the saving in labor and time will soon pay the cost of trestle. Under ordinary circumstances there is no further outlay, and the work can be pushed to an earlier completion than if he be confined to the use of turn-table cars.

We recommend these cars to be by far the cheapest and most perfect-working.

We build different classes of locomotives for hauling the different sizes of cars. See pages 15 and 16.



SIDE DUMPING CAR, NOS. 1, 1A AND 1B.

Gauge to suit 20 inch to 38 inch gauge of track.
Capacity one and one-half yards.
Length over all, 7 ft. 5 in.
Wheel-base, 3 feet 3 inches.
Length of body, 5 ft.; width, 5 ft.; depth, 16 inches.
Top of body, 4 ft. above rail.
Wheels 16 in. diam., chilled.
Axles 2¼ inch steel.
Brass bearings and rubber springs.
Woodwork of the best seasoned white oak, and all other materials first-class.

Especially designed for hand work and to be propelled by locomotive or teams. For description of locomotive designed for this work, see page 15.

Cars built on interchangeable part plan and shipped knocked down to save freight.

We invite particular attention to our patent device for dumping car and releasing gate: When catch is raised and lever moved about six inches to left, car dumps, and gate released swings outward on our patented circle bearing hinge, by means of which hinge bolt is relieved from all bending strain and the many vexatious breakages of ordinary hinges avoided. The lever, which both secures the gate and holds body from dumping, is our patented device.

One brake furnished *free* with every *five cars;* additional brakes as listed below. This brake is simple and effective, and can be easily applied to any car made by us.

There are no intricate parts to get out of order—yet every car is strong, handy and cheap

We make several sizes, but find the 30 inch gauge is most applicable for hand work, and in nearly every instance has been chosen in preference to others.

PRICES.

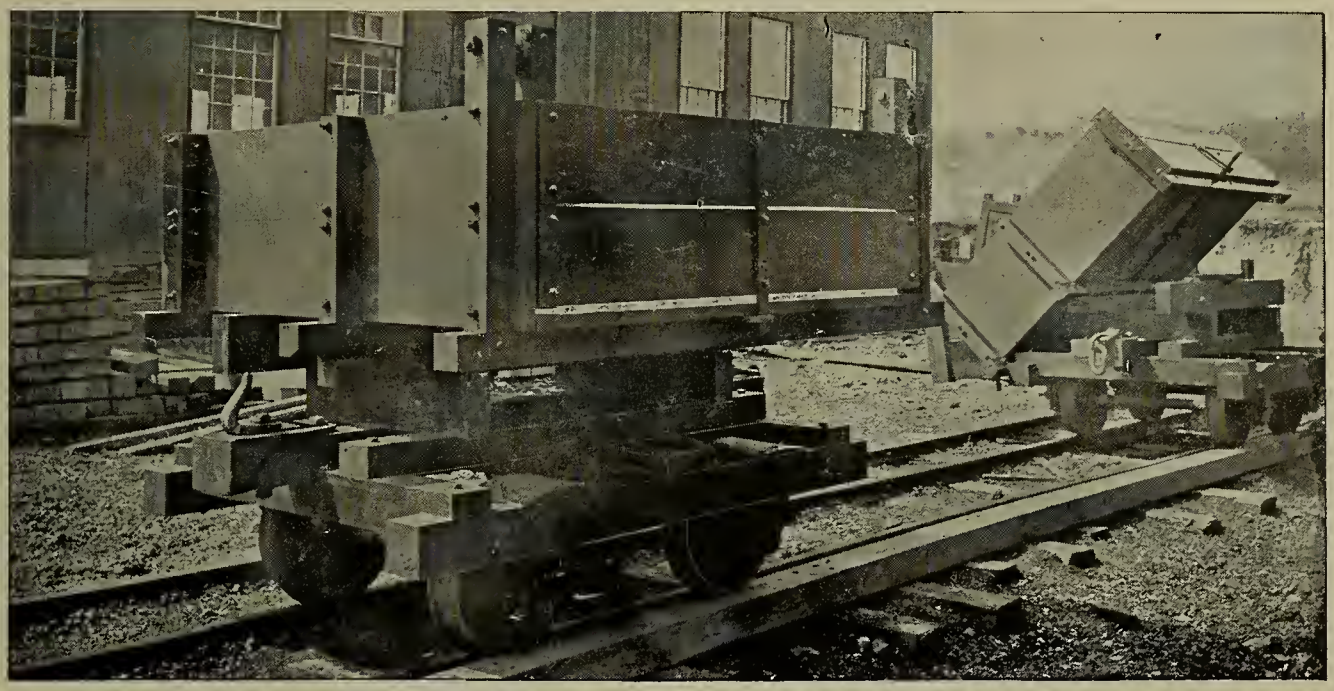
No. 1B, 20 inch gauge, weight 1300 lbs.	$64 00
" 1, 30 " " " 1400 "	67 00
" 1A, 36 " " " 1450 "	70 00

Prices of other gauges on application.

PRICES OF PARTS, UNIFORM FOR ALL GAUGES.

Brakes, per car,	$7 00	Link Couplings, (3 links) each,	$1 00
Wheels, per set,	20 00	Eyebolt and Staple,	50
" " pair,	10 00	Pedestal Straps, each,	10
Pedestals, each,	1 15	Dump Lever,	2 00
Boxes, each,	75	Gate Strap,	80
Brasses, each,	75	Lever Guard,	40
Caps, each,	15	Lever Lock Strap,	10
Springs, (rubber) each,	60	Automatic Catch,	65
Hinges, each,	75	Link Catch,	15
Bump Heads, each,	2 00	Frame Rods, each,	40
Snatch Hooks, each,	15	Wheel Shield, (sheet iron),	15

WRITE FOR DISCOUNT.



SIDE DUMPING STEAM SHOVEL CAR.

NOS. 2, 2A, 3 AND 3A.

Gauge to suit 30 inches to standard gauge of track.
Wheel-base, 3 ft. 5 in.
Capacity 2½ and 3 yards.
Length over all, 8 feet 4 inches.
Length of body 6 ft., width 6 ft., depth 2 ft., for 2½ yard car. The 3 yard car is 5 inches deeper.
Wheels 20 inches diam., chilled.
Axles 2¾ inches steel.
Brass bearings and rubber springs.
Woodwork of the best seasoned white oak, and all other materials first-class.
Especially designed for steam shovel work.
To be propelled by locomotive. For description of locomotive designed for this work, see page 15.
Cars built on interchangeable part plan, and shipped knocked down to save freight.

We invite your attention to our patent device for dumping car and releasing gate: When catch is raised and lever moved about six inches to left, car dumps, and gate released swings outward on our patented circle bearing hinge, by means of which bolt is relieved of all bending strain and the many vexatious breakages of ordinary hinges avoided. The lever, which both secures the gate and holds body from dumping, is our patented device.

One coupling chain of three links furnished with each car.

One brake furnished free with every five cars; additional brakes as listed below. This brake is simple and effective, and can be easily applied to any car made by us.

There are no intricate parts to get out of order,—yet every car is strong, handy and cheap.

We make several sizes, but find the 36 inch gauge is most applicable for this work, and in nearly every instance has been chosen in preference to others.

PRICES.

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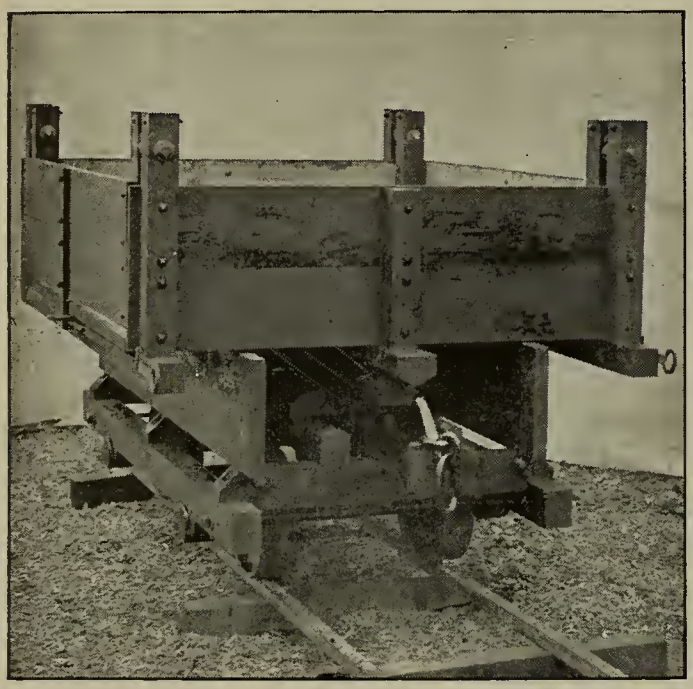
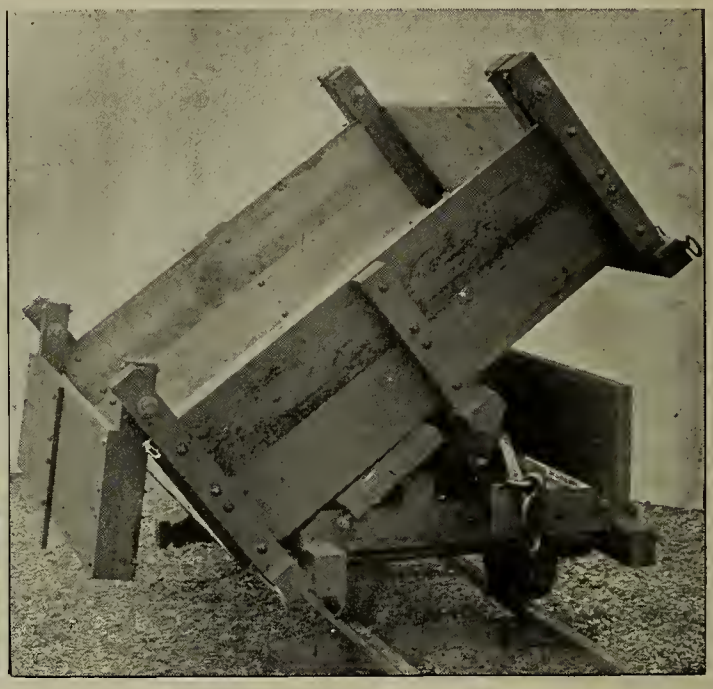




SIDE DUMPING CAR.

Nos. 7, 7A, 7B and 7C.

Dumps on either side.
Gauge to suit gauge of track 18 inches to 36 inches.
Capacity ¾ and 1 yd.
Length over all—
Wheels 13 inches chilled.
Axles 2 inch steel.
Babbitted bearings with roomy oil cellar.
Woodwork of the best seasoned white oak, and all other materials first-class.
Especially designed for work where a lighter car than our No. 1. is desired.
Built on interchangeable part plan.
To dump, operator releases gate-catch with one hand and throws back side-bearing with other.
Same gate hinge as used on No. 1 car.
One brake furnished free with every five cars; additional brakes as listed.

PRICES.

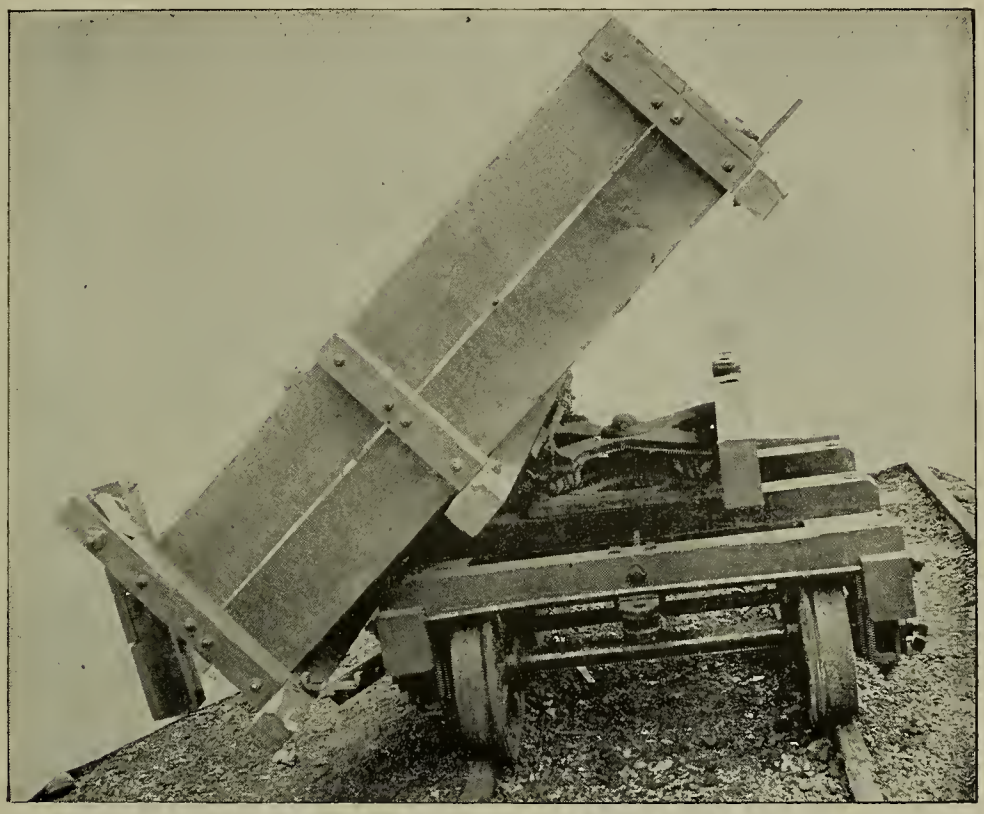
No. 7,	18″ to 24″	gauge—	capacity	¾	yd.	$52 00
" 7A,	25″ " 30″	"	"	"	"	53 50
" 7B,	18″ " 24″	"	"	1	"	54 75
" 7C,	25″ " 30″	"	"	"	"	56 00

We build this car to dump on one side only, same as No. 1 car, with same dumping device, for the above prices.

PRICES OF PARTS UNIFORM FOR ALL GAUGES AND BOTH CAPACITIES.

Brakes, per car,	$7 00	Snatch Hooks, each,	15
Wheels and Axle, per pair,	6 00	Link Couplings, (3 links) each,	1 00
Journal Boxes, each,	1 00	Eyebolt and Staple,	50
Hinges, each,	75	Gate Strap,	80
Bump Heads, each,	1 50		

WRITE FOR DISCOUNTS.



ROTARY OR UNIVERSAL DUMPING CAR, NOS. 4 AND 4A.

Gauge same as Cars Nos. 1 and 2.
Capacity same as Cars Nos. 1 and 2.
Dimensions of body same as Cars Nos. 1 and 2.
Dimensions of frame: length over all, 50 inches; width, 46½ inches.
Wheels and Axles same as Cars Nos. 1 and 2.
Wheel-Base 30 inches.
Top of body, 47 inches above rail.
Brakes applied same as on Cars Nos. 1 and 2.
Woodwork, best seasoned white oak, and all other materials first-class.

TURNTABLE.—The only material change in this Car from Nos. 1 and 2 is the turntable, which is original with us, and consists of two plates of cast-iron. The bottom plate rests on the cross sills of the car, and in the centre of it is a wrought hub 2½ inches in diameter, which projects above the plate 6½ inches. Bottom casting has two latch-rests. The top casting contains four small rollers, a wrought iron latch and dumping lugs, and revolves with the body of the car. The wrought iron latch is held in position by a bolt and guard. When the car is turned to dump on either side, this latch drops automatically into the rests on bottom casting, thus holding the car firm; when running it prevents the car from turning.

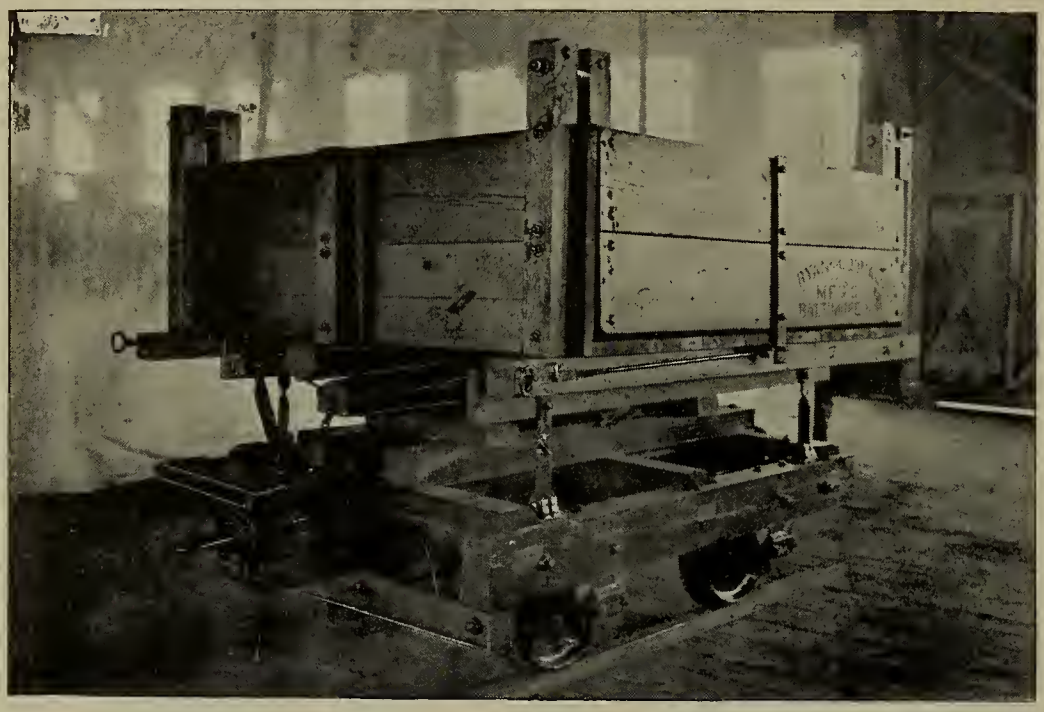
This car dumps on either end and either side; has no bumper—we use a coupling bar instead to connect trains.

These cars are suitable for use in GRADING, COAL AND ORE SHIFTING, QUARRY AND BRICK YARD WORK, GRAVEL PITS, LEVEE BUILDING, etc., etc.

PRICES.

No. 4, 30″ gauge, 1½ yd., weight 1600 lbs.	$80 00
No. 4A, 36″ " " " " 1650 "	83 00
PARTS—Bottom Rotary Casting, each,	6 00
Top " " "	6 00
Other parts same as No. 1 Car.	
No. 5, 36″ gauge, 2½ yd.	120 00
No. 6, 38″ " " "	120 00
PARTS—Bottom Rotary Casting each,	10 00
Top " " "	10 00
Other parts same as No. 2 Car.	

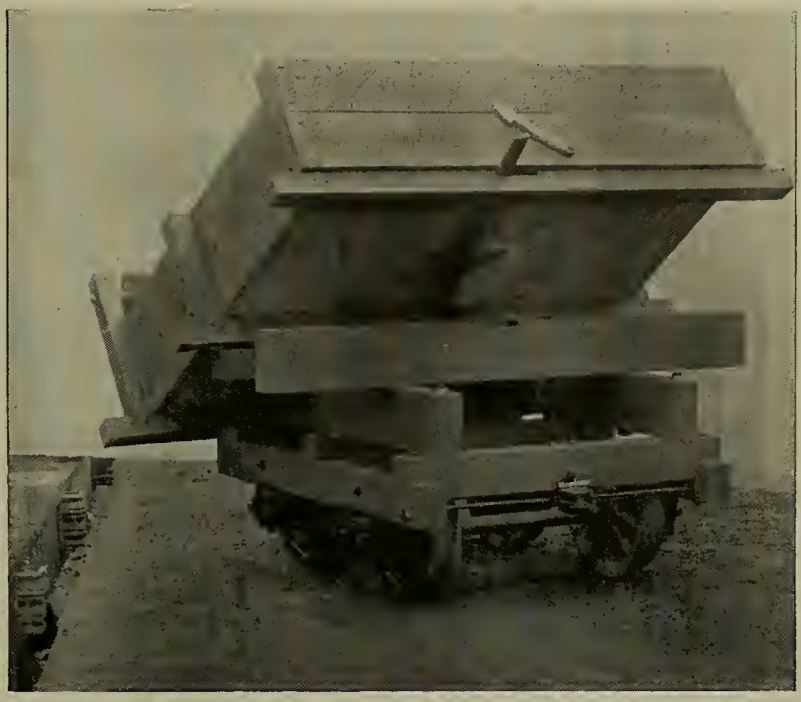
WRITE FOR DISCOUNT.



SIDE DUMPING CAR, NO. 8.

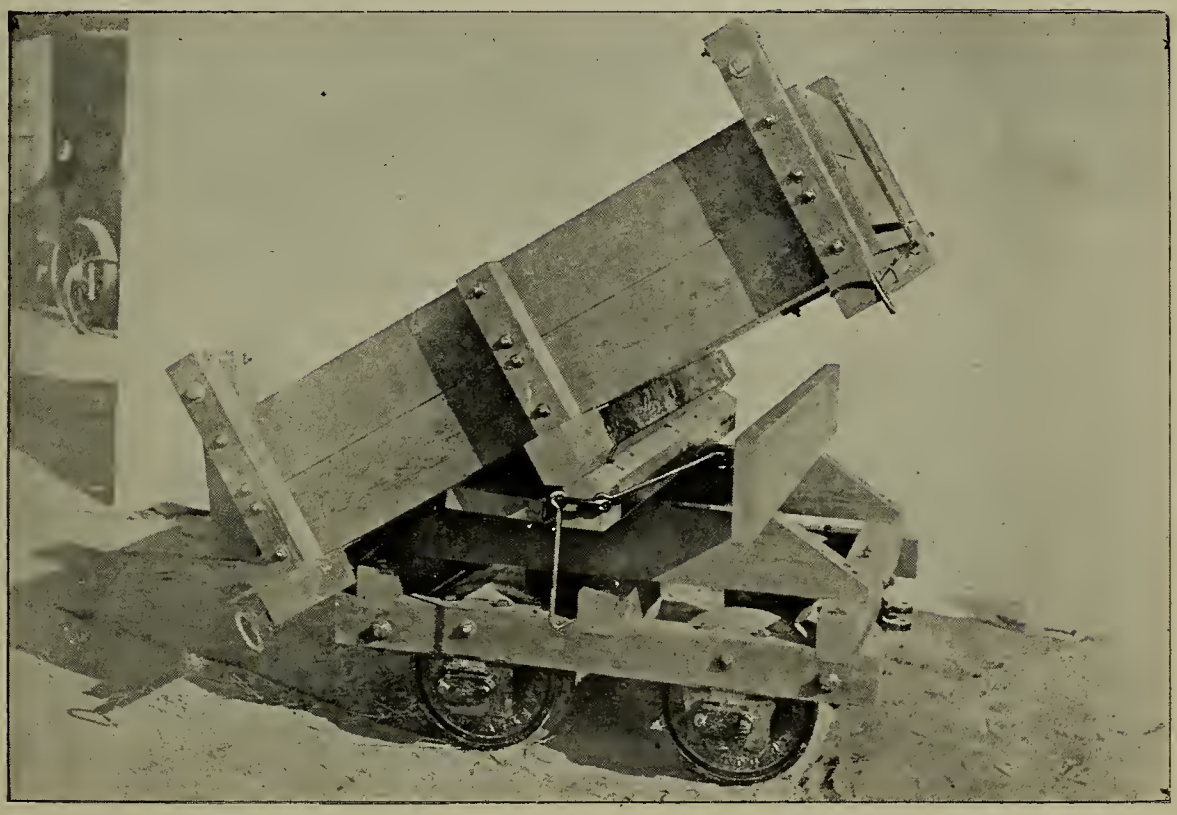
Dumps from either side; capacity 2½ to 3 yards; gauge to fit 36″ to 42″ gauge of track; wheels 20″ chilled; axles 2¾″ steel; brass bearing; spring draw-head.

PRICES ON APPLICATION.



END-DUMPING CAR, NOS. 1X AND 2X.

This car dumps from one end only. We build these cars in the same sizes and gauges as the Side Dump Cars Nos. 1 and 2. The prices of the complete end-dump car and the parts of same are the same as prices of Side Dump Cars No. 1 and 2, shown on pages 4 and 5.



DOUBLE END-DUMPING CAR, NOS. 1Z AND 2Z.

This car dumps from either end. We build these cars in the same sizes and gauges as the Side Dump Cars Nos. 1 and 2.

PRICES.—Add $5.00 to list-prices of Cars Nos. 1 and 2. Parts same as Cars Nos. 1 and 2. Discount from list price same as Cars Nos. 1 and 2.

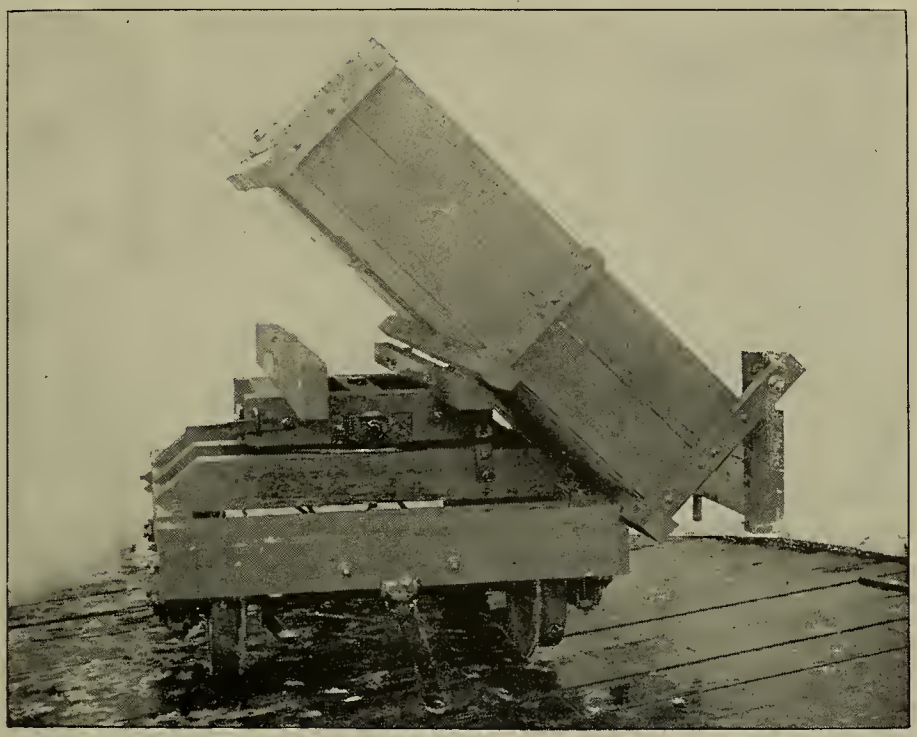
SIDE DUMPING CAR, NO. 11.

Side lets down for easy loading; otherwise same as No. 1.

Capacity and gauge same as No. 1 Car, page 4.

PRICE.

Add $4.00 to list-price of No. 1 Car. Discount from list same as No. 1.



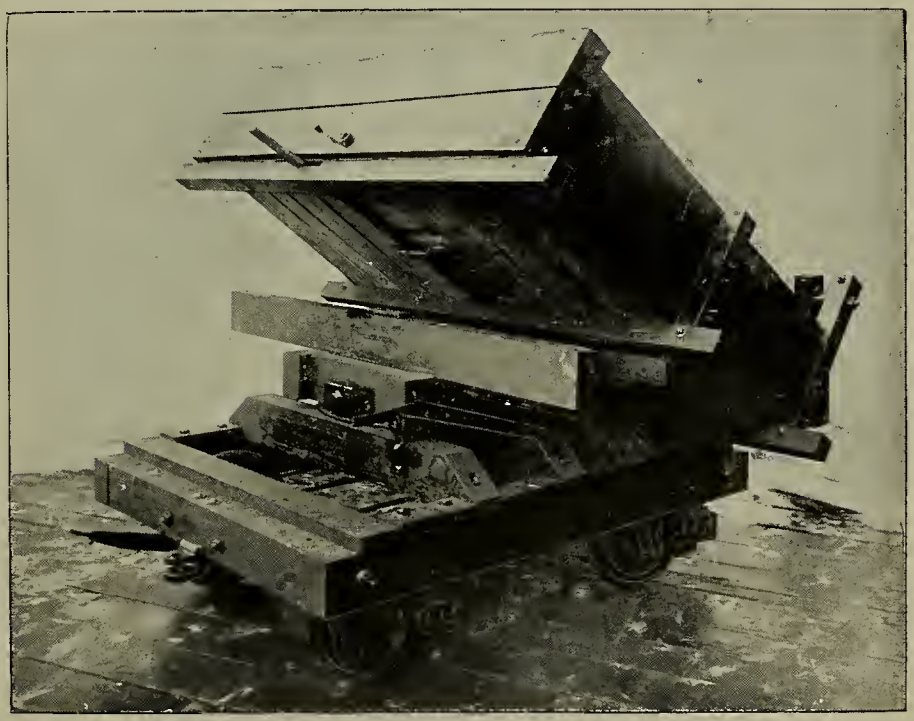
ROTARY OR UNIVERSAL DUMPING CAR, NOS. 9 AND 10.

Built substantially same as Cars Nos. 1 and 2.
Has brass bearings, steel axles, chilled wheels, and all other materials first-class.

PRICES.

No. 9, 1½ yard—30″ gauge, (for hand work)	$73 30
No. 10, 2½ yard—36″ gauge, (for steam shovel work)	113 30

Prices of other sizes and gauges on application.
One brake furnished free with every five cars.



HOPPER OR BOTTOM DUMP CAR, NO. 15.

Gauge to suit 20″ to standard gauge of track.

Capacity 3 to 4½ tons.

Wheels 16″ diam., chilled.

Axles 2¼″ steel.

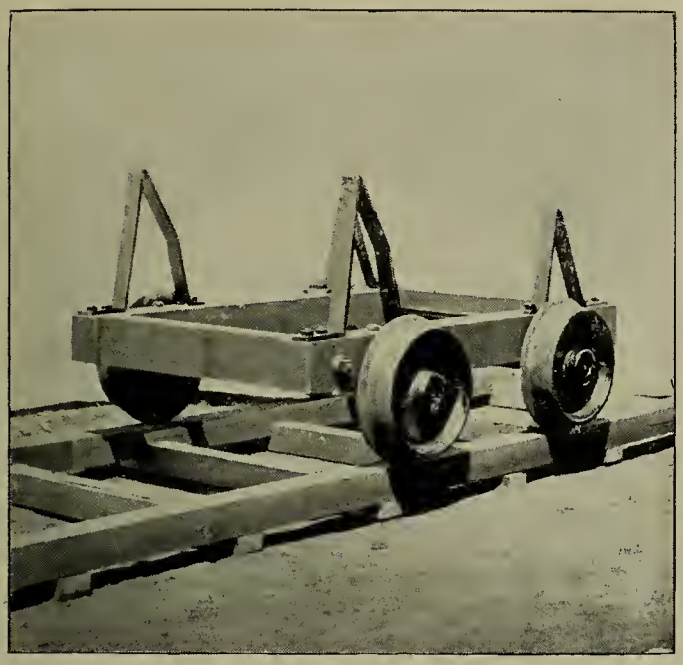
Babbitted bearings and roomy oil cellar.

Woodwork of the best seasoned white oak, and all other materials first-class.

Dumps from bottom; Hopper doors held in place by chains wound on axle by means of crank from end of car.

PRICES.

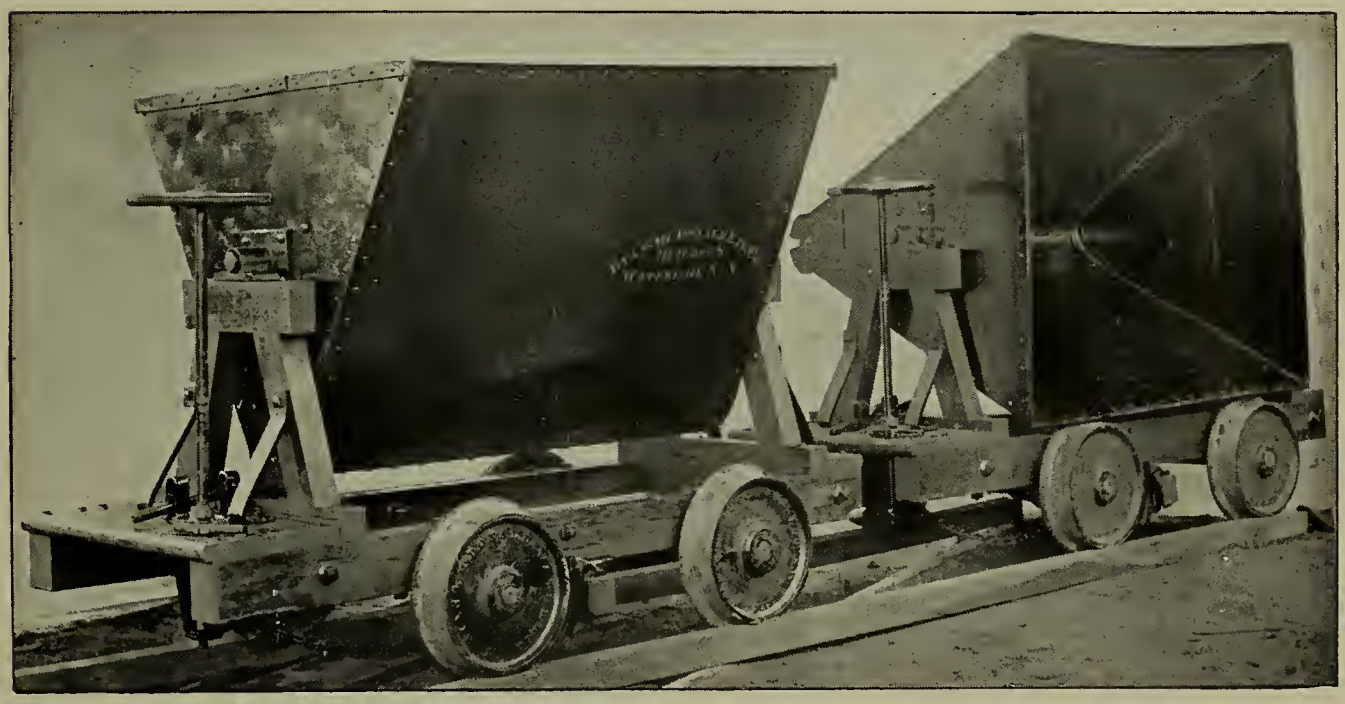
No. 15, 3 ton 36″ gauge,	$113.00
No. 15A, 3½ ton 36″ gauge,	120.00
No. 15B, 4 ton 36″ gauge,	127.00
No. 15C, 4½ ton 36″ gauge,	133.00



CAR TRUCK, NO. 16.

Specially designed for carrying coal buckets; built for any gauge and for any capacity of bucket desired.

PRICES.—Quoted on application stating gauge and capacity.

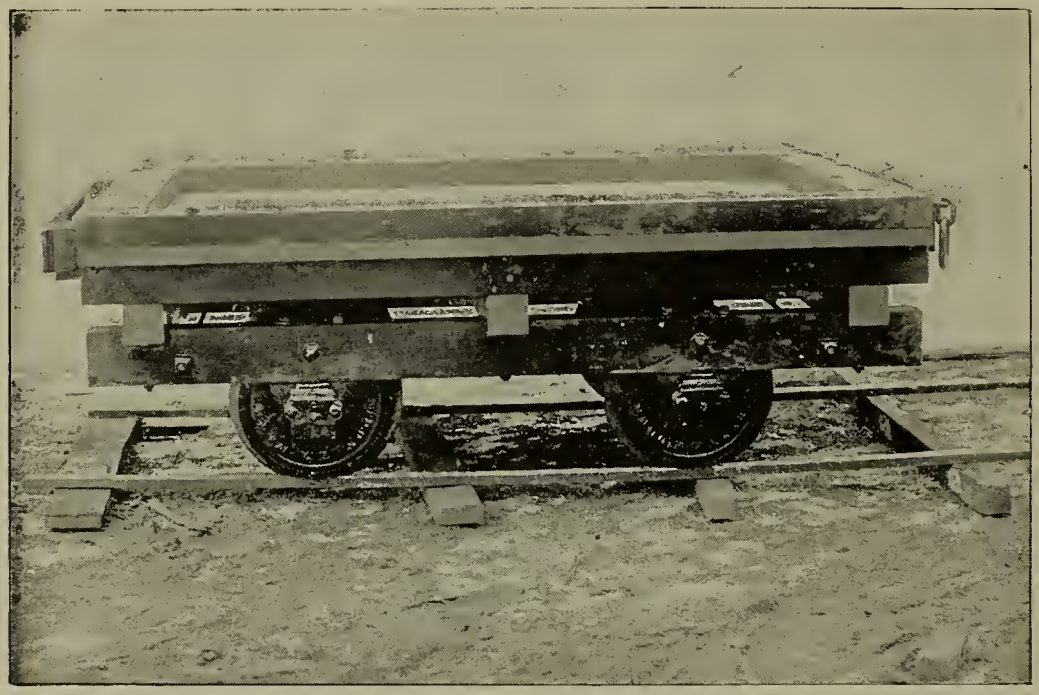


IRON BODY CAR, NO. 17.

Designed for coal, ore, coke, etc.; gauge to suit 18″ to 38″ gauge of track; capacity 1, 1½ and 2 tons; dumps either side; body of sheet-iron or steel; frame of select seasoned white oak, and all other materials first-class; trucks as well as body made of iron or steel if desired.

TABLE OF DIMENSIONS, CAPACITIES, ETC.

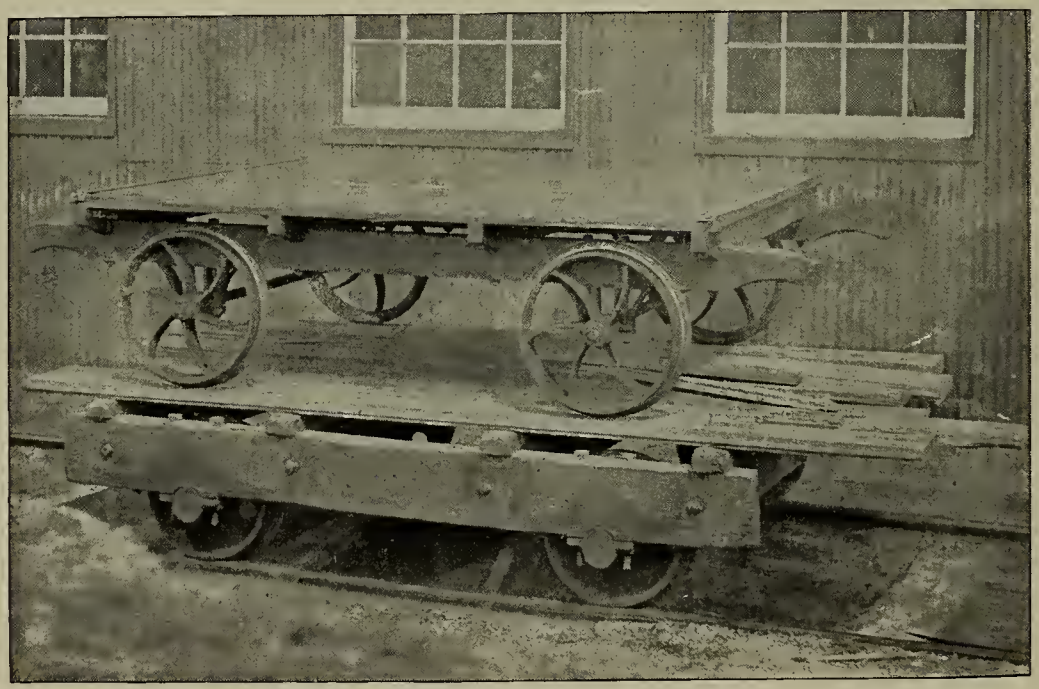
Number.	Capacity.	Height of Car from Track.	Height of Car when Dumping.	Width on Top.	Length over all.	Diameter Wheels.	Gauge of Track unless otherwise ordered.	Wheel-Base.	Price each.
17	1 ton.	62 in.	72 in.	60 in.	90 in	18 in.	30 in.	52 in.	$150 00
17A	1½ tons.	63 in.	83 in.	69 in.	91 in.	18 in.	30 in.	52 in.	175 00
17B	2 "	68 in.	93 in.	80 in.	112 in.	23 in.	36 in	52 in.	225 00



FLAT STONE CAR, NO. 18.

Gauge to suit 18″ to standard gauge of track.
Any capacity desired BUILT SPECIALLY STRONG FOR ROUGH USAGE IN HANDLING STONE AND BROKEN ROCK.
Brass bearings and rubber springs.
Wheels, chilled iron.
Axles, steel.
Woodwork of best seasoned white oak, and all other materials first-class.
Brakes furnished if desired.

PRICES QUOTED ON APPLICATION.

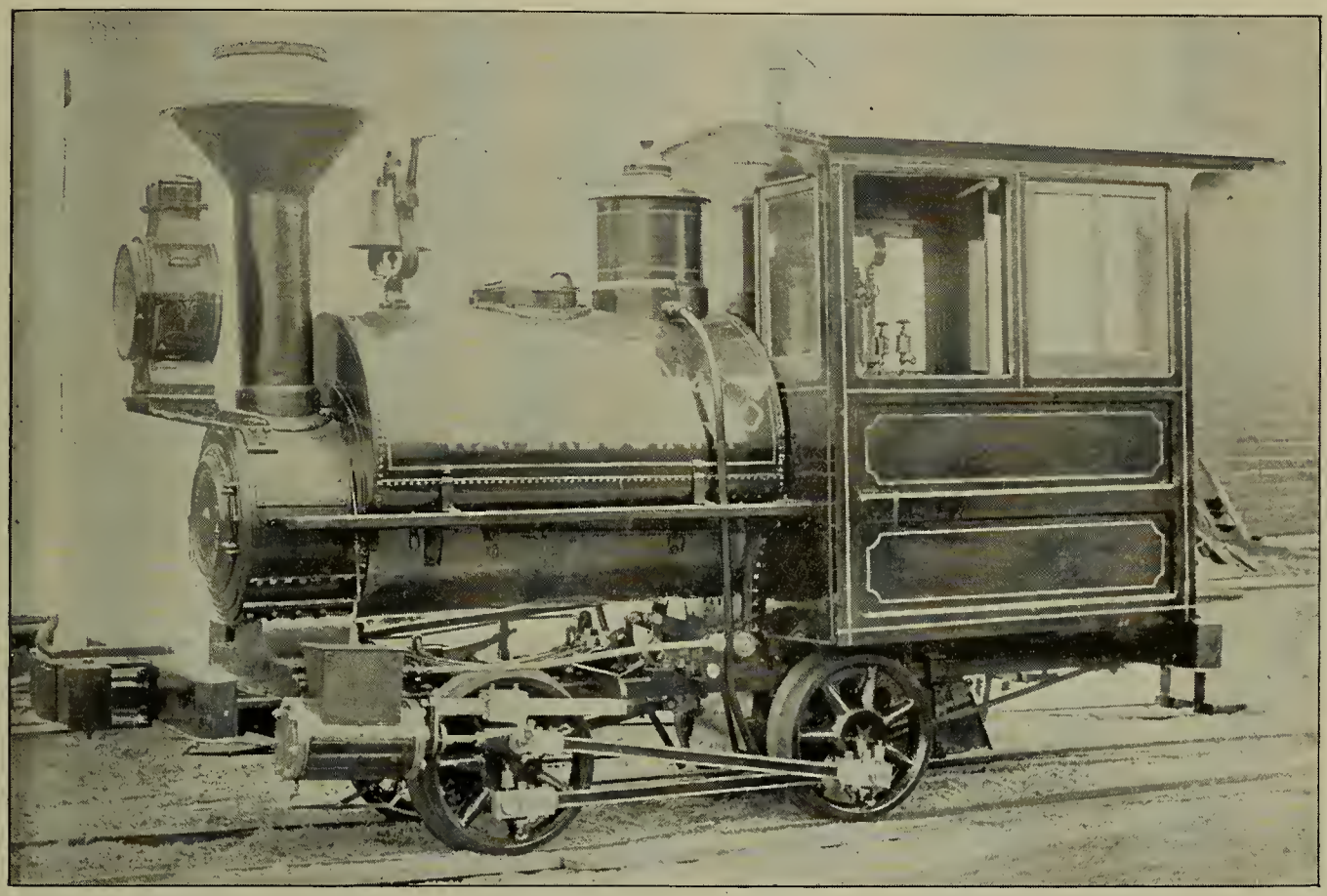


FLAT HAND PUSH CAR, NO. 19.

Built for any guage or capacity.

PRICES.

Quoted on application stating gauge and capacity wanted.



LOCOMOTIVES.

These engines are specially designed for contractors, and other work where the run is not long, on sharp curves and heavy grades, requiring power rather than speed, and short wheel-base with general compactness. They are built of the best materials—most modern design—with all necessary fittings and conveniences, and are first-class in every respect.

The gauges run from thirty inches up to standard gauge; and under ordinary circumstances they will develop a speed of from six to ten miles per hour. The two narrow gauges most used are 30″ and 36″.

Following is a table of the principal dimensions of ordinary sizes:—

Cylinders { Diam.	6 inches.	7 inches.	8 inches.	9 inches.	10 inches.
Cylinders { Stroke,	10 "	10 "	12 "	14 "	14 "
Diam. Driving Wheels,	22 "	24 "	24 "	28 "	30 "
Wheel Base,	4 feet.	4 ft. 6 in.	4 ft. 8 in.	5 feet.	5 ft. 3 in.
Weight,	9,000 lbs.	11,000 lbs.	15,000 lbs.	18,000 lbs.	20,000 lbs.
Capacity of Saddle Tank,	150 gals.	200 gals.	250 gals.	300 gals.	325 gals.

PRICES.—QUOTED ON APPLICATION.

We also build light Locomotives with tenders, and will quote prices with specifications on application.

MINE LOCOMOTIVES.

ESPECIALLY DESIGNED FOR USE IN MINES AND TUNNELS.

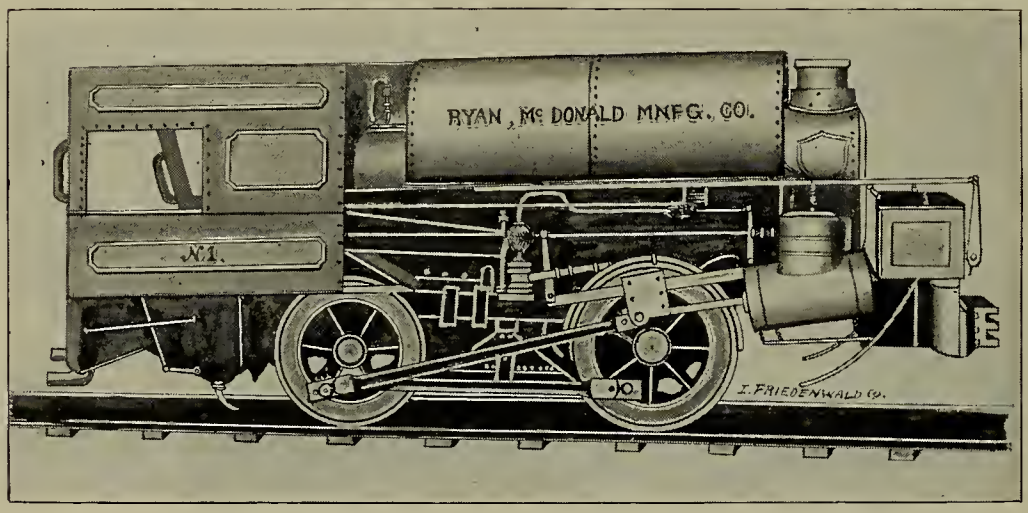
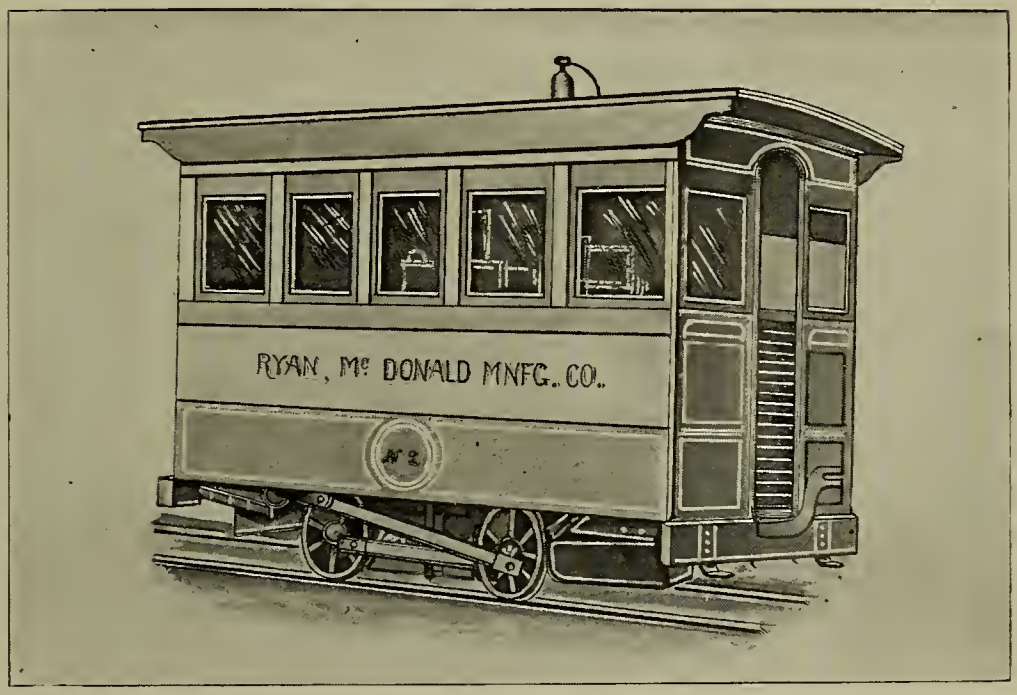


TABLE OF DIMENSIONS, ETC.

Cylinders { Diameter,	6 inch.	7 inch.	8 inch.	9 inch.	10 inch.
Cylinders { Stroke,	10 "	10 "	12 "	14 "	12 "
Diameter of Driving Wheels,	22 "	24 "	24 "	28 "	30 "
Wheel Base,	4 feet.		4′ 8″	5′ 0″	5′ 3″
Extreme Width on 36 inch Gauge,	60″	63″	64″	65″	67″
Extreme height from rail, least advised,	5′ 0″	5′ 3″	5′ 6″	6′ 4″	6′ 6″
Weight in working order,	4000 lbs.	12000 lbs.	15000 lbs.	18000 lbs.	22000 lbs.
Capacity of Saddle Tank,	130 gals.	160 gals.	200 gals.	250 gals.	300 gals.

Prices.

Quoted on application stating gauge and capacity desired, and size of openings engines must run through.



ENCLOSED SADDLE TANK MOTORS.

Designed for use in City streets and local passenger traffic. The workmanship and material used are equal to that of the best constructed locomotives.

TABLE OF SIZES, ETC.

Cylinders { Diameter,	6″	7″	8″	9″	10″
Cylinders { Stroke,	10″	10″	12″	14″	14″
Diameter of Driving Wheels,	22″	24″	24″	28″	30″
Wheel Base,	4 ft.		4′ 8″	5′ 0″	5′ 3″
Height over all,	9′ 6″	9′ 6″	9′ 10″	10′ 2″	10′ 2″
Weight in working order, (all on drivers)	14000 lbs.	16000 lbs.	20000 lbs.	24000 lbs.	27000 lbs.
Capacity of Saddle Tank,	150 gals.	200 gals.	250 gals.	300 gals.	325 gals.

PRICES.

Quoted on application stating gauge and capacity desired.

IMPROVED HOISTING ENGINES, ADAPTED TO ALL GENERAL HOISTING PURPOSES.

These engines are made from the best materials—most modern design—and are strictly first-class.

They are built with or without boilers.

The frame and other castings are of the best pig iron, and other parts of steel and refined iron.

The PISTON is of improved pattern, fitted with metallic packing rings, which are self-adjusting and readily adapt themselves to any wear of the cylinder.

The THROTTLE and FRICTION LEVERS are arranged for easy handling.

The FRICTION is cone-shaped, of hard maple sectors, tightly bolted to spur wheel, and turned to suit the drum with which it engages when in operation.

The DRUM is loose on the shaft (except where reversible link is wanted), has long bearings, is turned down all over, and is free to revolve without perceptible resistance. It is thrown into friction by a short end motion along the shaft, which is effected by means of a lever; the power of our device being such that a very slight pressure will hold the drum in gear against any load the engine can hoist.

The FRAME or BED is amply strong and durable.

The CYLINDERS are cast, and have ample steam and exhaust ports.

The VALVE and PISTON RODS are steel.

The CROSS HEADS are of the hanging type, are simple and strong and fitted with brass gibs.

The CONNECTING ROD is refined iron, with straps and keys to take up the wear.

The DRUM and CRANK SHAFTS are the best quality of steel shafting.

The CRANK WHEEL is balanced.

The BEARINGS are all of superior babbitt.

The GEARS are cast with great care from exact patterns, and HAVE A RESERVED CAPACITY ABOVE WHAT THE ENGINE CAN LIFT.

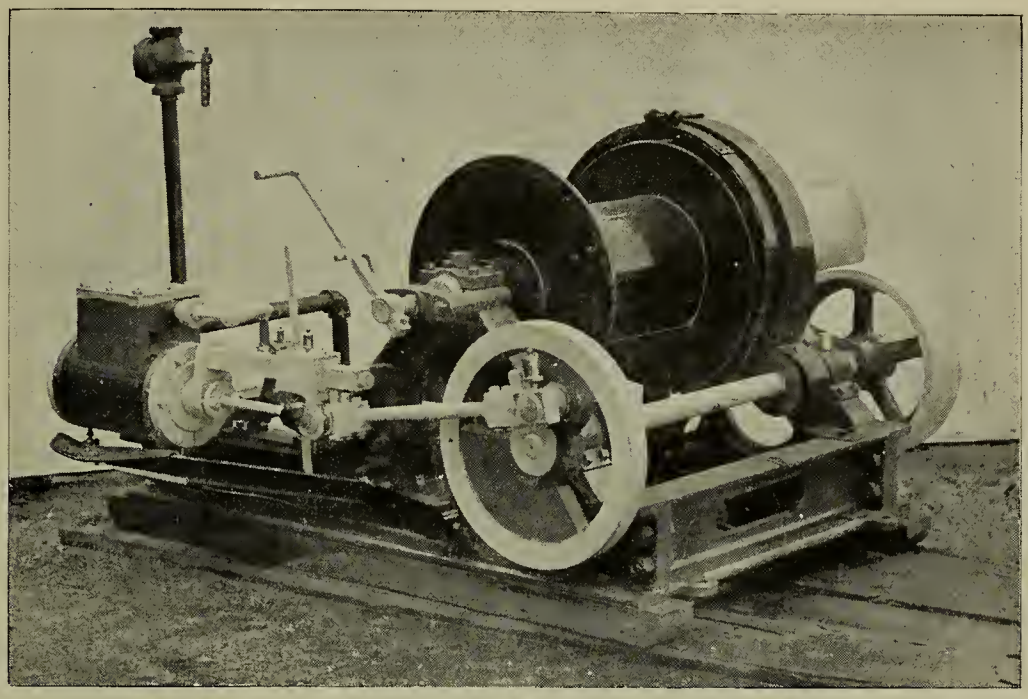
The WORKMANSHIP is accurate in all respects, and parts are made on duplicate system, insuring perfect interchangeability.

The BOILER, when used, is made from the best steel plates of guaranteed tensile strength, thoroughly braced and stayed, and of best construction. They are hand-riveted throughout. Tubes are best American lap-welded, and are carefully inspected before use. Tube-heads are drilled to exact size of tubes; tubes fitted accurately and then expanded. SMOKE HOOD is of cast-iron and dressed to close joint. Boiler is furnished with POP SAFETY-VALVE, THROTTLE VALVE, WATER and STEAM GAUGES, STOP and BLOW-OFF COCKS, INJECTOR, OILERS, SIGHT-FEED LUBRICATOR, THREE-WAY EXHAUST COCK to exhaust into stack if forced draft is desired, three feet of SMOKE STACK and a full line of FIRE TOOLS.

FOOT-BRAKES are desirable, as they save wear on the drum friction and assist in holding heavy loads as well as to allow the use of engine while the load is suspended. They are extra, and can be applied to any engine heretofore without them. They are not an actual necessity, but a valuable assistant and safeguard.

All engines are thoroughly TESTED WITH STEAM before leaving our works.

The FRICTION ENGINES are specially applicable for PILE DRIVING, and will drive 50 per cent. more piles than can be driven by any clutch and brake engine, with the old-fashioned tongs which loosen the grip on the hammer at the top of derrick, or necessitate the stationing of an extra man on the derrick frame to loosen the clutch by hand. With our FRICTION ENGINES the rope fastened to the hammer passes up the frame, over the sheave and down to the drum, so that in operation hammer is raised to the desired height, the friction loosened, and the hammer descends, overhauling the drum as it falls, without perceptible friction. By using suitable heavy hammer, and striking short, quick blows, at first, and heavier blows as the pile is driven home, the head of the pile is not liable to be split or damaged, and much time is saved. Furthermore the pile may be more accurately guided in the driving.



SINGLE CYLINDER, SINGLE DRUM, IMPROVED FRICTION HOISTING ENGINE,

WITH OR WITHOUT ADJUSTABLE FOOT-BRAKE.

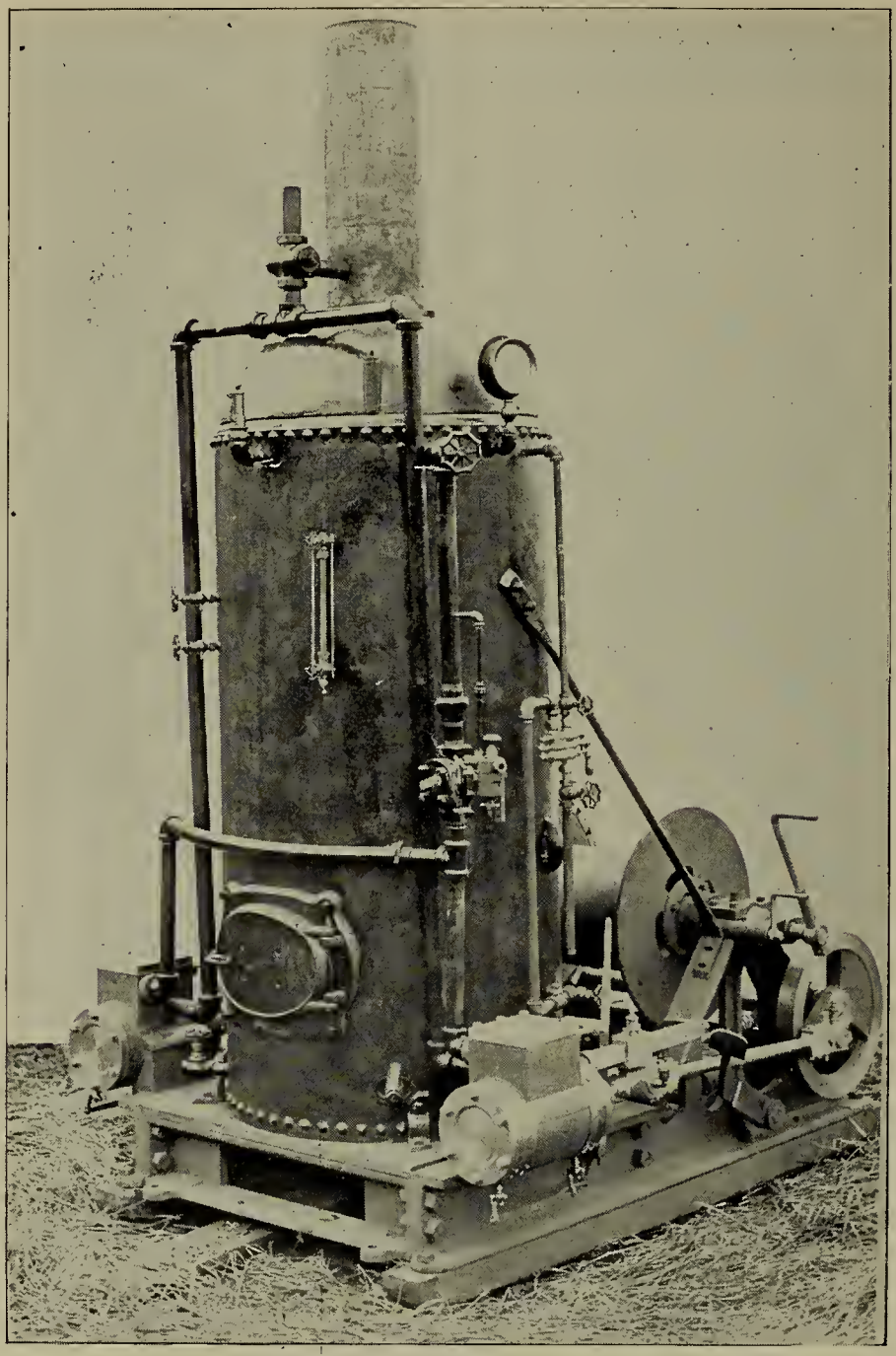
This engine is especially recommended for docks, where several may be needed at intervals, and connected by pipe from single boiler or air compressor. It is portable and strong, and intended for contractors, docks, quarries, tunnels, developing mines, railroads, warehouses, coal yards, ice houses, lighters, stevedores, sheet piling, and general hoisting purposes. It is provided with single cylinder and improved friction drum, balance crank wheel, and with or without adjustable wood-lined band foot-brake, extra, as ordered. The fixtures consist of throttle valve, lubricators, oil cups, cylinder cocks, etc. Every engine has winch head on drum shaft and band wheel on crank shaft.

SIZES, WEIGHTS, PRICES, ETC. NO BOILER.

Number.	Horse Power.	Dimensions of Cylinders.		Dimensions of Drums.			Dimensions of Bed Plates.		Shipping Weight, lbs.	Price of Engine complete. No Boiler.	Price of Engine Complete. No Boiler. With Foot-Brake.	Weight Hoisted Single Rope, pounds.
		Diameter Inches.	Stroke Inches.	Diameter Inches.	Length between Flanges.	Diameter Flanges.	Width Inches.	Length Inches.				
0	4	5	8	12	18	22	34	59	1450	$365	$390	1200
1A	6	6¼	8	12	18	22	34	59	1700	405	440	1500
1B	8	6¼	10	12	18	22	34	59	1750	440	465	1750
2	10	7	10	14	22	26	43	69	2300	465	490	2000
3	12½	7¾	10	14	22	26	43	69	2600	490	515	2500
4	15	8½	10	14	22	26	43	69	3000	515	540	3000
5	20	9	12	18	28	30	50	80	4000	735	785	4000

SIZES, WEIGHTS, PRICES, ETC. WITH BOILER.

Number.	Horse Power.	Cylinders.		Drums.			Weight Hoisted, Single Rope, pounds.	Suitable Weight, Pile-Driving Hammer. Quick Work.	Dimensions of Boilers.					Floor Space.		Shipping Weight, complete, lbs.	Price complete, Boilers, Fittings, No Brake.	Price complete, Boilers, Fittings and Brake.
		Diameter Inches.	Stroke Inches.	Diameter Inches.	Length Inches.	Diameter Flanges.			Diameter.	Height.	No. of 2 inch Tubes.	Height Furnace.	Diameter Furnace.	Width Inches.	Length Inches.			
37A	6	6¼	8	12	18	22	1500	1250	28	72	40	24	24	42	65	3750	$660	$685
37B	8	6¼	10	12	18	22	2000	1400	30	72	45	24	26	44	74	4400	760	785
38	10	7	10	14	22	26	2500	2000	34	72	60	24	30	44	74	4750	810	835
39	12½	7¾	10	14	22	26	3000	2300	36	72	65	24	32	44	74	5500	950	975
40	15	8½	10	14	22	26	3750	3000	36	78	72	24	33	44	74	6500	1,025	1,050
41	20	9	12	18	28	30	5000	4000	40	84	82	28	35	54	84	8500	1,270	1,300



DOUBLE CYLINDER, SINGLE DRUM, IMPROVED FRICTION HOISTING ENGINE,

WITH OR WITHOUT ADJUSTABLE FOOT-BRAKE.

This engine is specially adapted for contractors, railroads, quarries, inclines, small shafts, bridge building, docks, warehouses, lighters, barges, coal yards, ice houses, pile driving, and general hoisting, where boiler is detached and connected by steam pipe, or compressed air may be used. They have double cylinders, friction drum, and two balanced crank wheels, and, if desired, extra, are provided with adjustable band foot-brake, lined with hard maple blocks. Fixtures are same as with single cylinder engines.

DOUBLE CYLINDER, SINGLE DRUM, IMPROVED FRICTION HOISTING ENGINE.

SIZES, WEIGHTS, PRICES, ETC. NO BOILER.

Number.	Horse Power.	Dimensions of Cylinders.		Dimensions of Drums.			Dimensions of Bed Plates.		Shipping Weight, lbs.	Price of Engine complete. No Boiler.	Price of Engine complete. No Boiler. With Foot-Brake.	Weight Hoisted Single Rope, pounds.
		Diameter Inches.	Stroke Inches.	Diameter Inches.	Length Inches.	Diameter Flanges.	Width Inches.	Length Inches.				
5A	6	5	6	12	18	22	34	57	1450	$415	$440	1000
5B	8	5	8	12	18	22	34	57	1800	500	515	1750
6A	12	6¼	8	14	22	26	48	57	2500	540	565	2500
6B	16	6¼	10	14	22	26	48	69	2800	585	610	3000
7	20	7	10	14	22	26	48	69	3200	635	660	3500
8	25	7¾	10	14	22	26	48	69	3750	685	710	5000
9	30	8½	10	14	22	26	48	69	4500	735	760	6000
10	40	9	12	18	28	30	60	80	6500	1,025	1,075	8000

SIZES, WEIGHTS, PRICES, ETC. WITH BOILER.

Number.	Horse Power.	Cylinders.		Drums.			Weight Hoisted Single Rope, pounds.	Suitable Weight, Pile-Driving Hammer. Quick Work.	Dimensions of Boilers.					Floor Space.		Shipping Weight, complete, pounds.	Price, complete, Boilers, Fittings. No Brake.	Price, complete, Boilers, Fittings and Brake.
		Diameter Inches.	Stroke Inches.	Diameter Inches.	Length Inches.	Diameter Flanges.			Diameter.	Height.	No. of 2-inch Tubes.	Height Furnace.	Diameter Furnace.	Width Inches.	Length Inches.			
41A	8	5	8	12	18	22	1750	1500	30	72	45	24	26	44	74	4800	$905	$930
42A	12	6¼	8	14	22	26	3000	2000	36	72	60	24	31	50	74	5500	1,000	1,025
42B	16	6¼	10	14	22	26	4000	3000	36	80	65	26	32	50	74	7500	1,225	1,250
43	20	7	10	14	22	26	5000	4000	40	84	82	28	35	60	74	8500	1,275	1,300
44	25	7¾	10	14	22	26	6250	5000	42	90	92	30	37	60	74	9000	1,320	1,350
45	30	8½	10	14	22	26	7500	6000	44	90	110	30	39	60	74	10000	1,425	1,475
46	40	9	12	18	28	30	10000	8000	48	102	124	32	42	64	84	15000	2,075	2,125

SINGLE CYLINDER, DOUBLE FRICTION DRUM HOISTING ENGINE,

WITH RATCHET AND PAWLS, WITH OR WITHOUT ADJUSTABLE FOOT-BRAKE.

These engines are especially applicable in bridge building, pile driving, dock and levee building, lighters, barges, warehouses, quarries, coal yards, railroads, and other hoisting purposes. The drums are independent in action and are especially fitted to the handling of derricks and piles, and dock building, as one man can easily handle both drums. They are supplied with band wheel winch head, and foot-brakes, for either or both drums, extra; same fittings as other engines.

SIZES, DIMENSIONS, CAPACITIES, WEIGHTS, PRICES, ETC. NO BOILER.

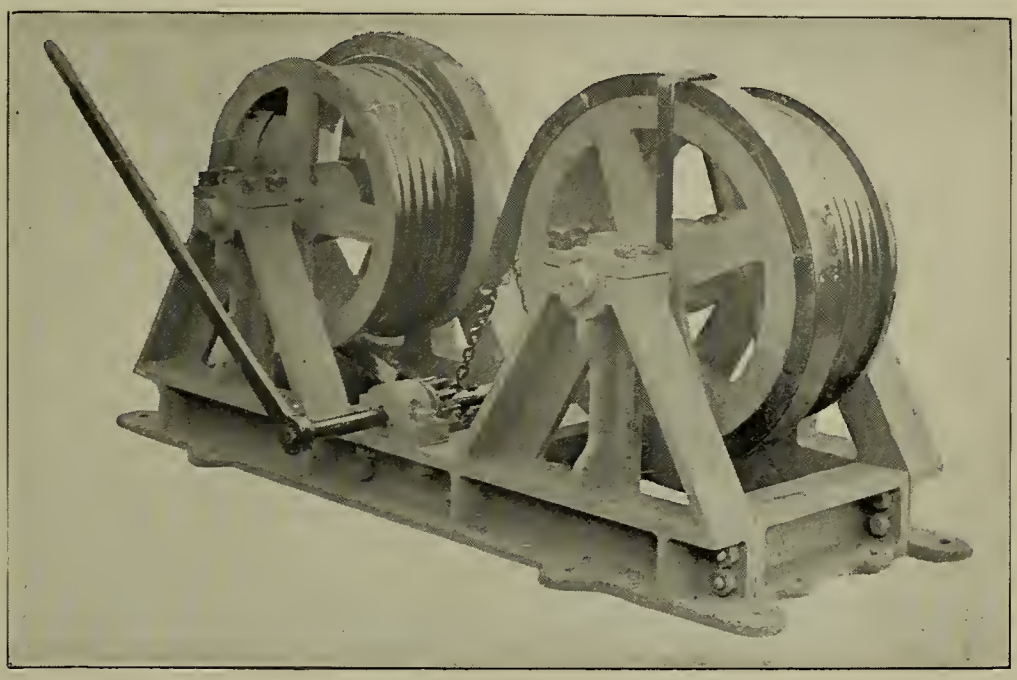
Number.	Horse Power.	Dimensions of Cylinders.		Dimensions of Drums.			Dimensions of Bed Plates.		Shipping Weight, lbs.	Price of Engine complete with Ratchets and Pawls. No Boiler.	Price of Engine complete with Ratchets, Pawls, and Foot-Brake. No Boiler.	Weight Hoisted, Single Rope, pounds.
		Diameter Inches.	Stroke Inches.	Diameter Inches.	Length Inches.	Diameter Flanges.	Width Inches.	Length Inches.				
11	10	7	10	14	22	26	45	82	3800	$660	$710	2000
12	12½	7¾	10	14	22	26	45	82	4500	700	750	2500
13	15	8½	10	14	22	26	45	82	5000	735	785	3000
14	20	9	12	18	28	30	50	97	6500	975	1,025	4000

SIZES, DIMENSIONS, CAPACITIES, WEIGHTS, PRICES, ETC. WITH BOILER.

Number.	Horse Power.	Cylinders.		Drums.			Weight Hoisted, Single Rope, pounds.	Suitable Weight, Pile-Driving Hammer. Quick Work.	Dimensions of Boilers.				Floor Space.		Shipping Weight, complete, pounds.	Price, complete, Boilers, Fittings, Ratchets and Pawls. No Brake.	Price, complete, Boilers, Fittings, Ratchets, Pawls, and Brake.
		Diameter Inches.	Stroke Inches.	Diameter Inches.	Length Inches.	Diameter Flanges.			Diameter.	Height.	No. of 2 inch Tubes.	Height Fire-Box.	Diameter Fire-Box.	Width Inches.	Length Inches.		
47	10	7	10	14	22	26	2500	2000	34	72	60	24	30	46	87	6500	$1,070	$1,120
48	12½	7¾	10	14	22	26	3000	2300	36	72	65	24	30	46	87	7500	1,150	1,200
49	15	8½	10	14	22	26	3750	3000	36	78	72	24	32	46	87	8500	1,250	1,300
50	20	9	12	18	28	30	5000	4000	40	84	82	28	35	56	101	10000	1,550	1,600

PILE-DRIVING HAMMERS.

We make pile-driving hammers of all weights, and will quote prices with specifications on application.



DOUBLE DRUM FOR CONTROLLING ENDLESS CABLE.

The above cut represents a double winding drum we build for controlling an endless cable, and largely used for making the loaded cars going down grade pull the empty ones up.

The band-brake on drums will control the speed of cars independent of the brakes on cars.

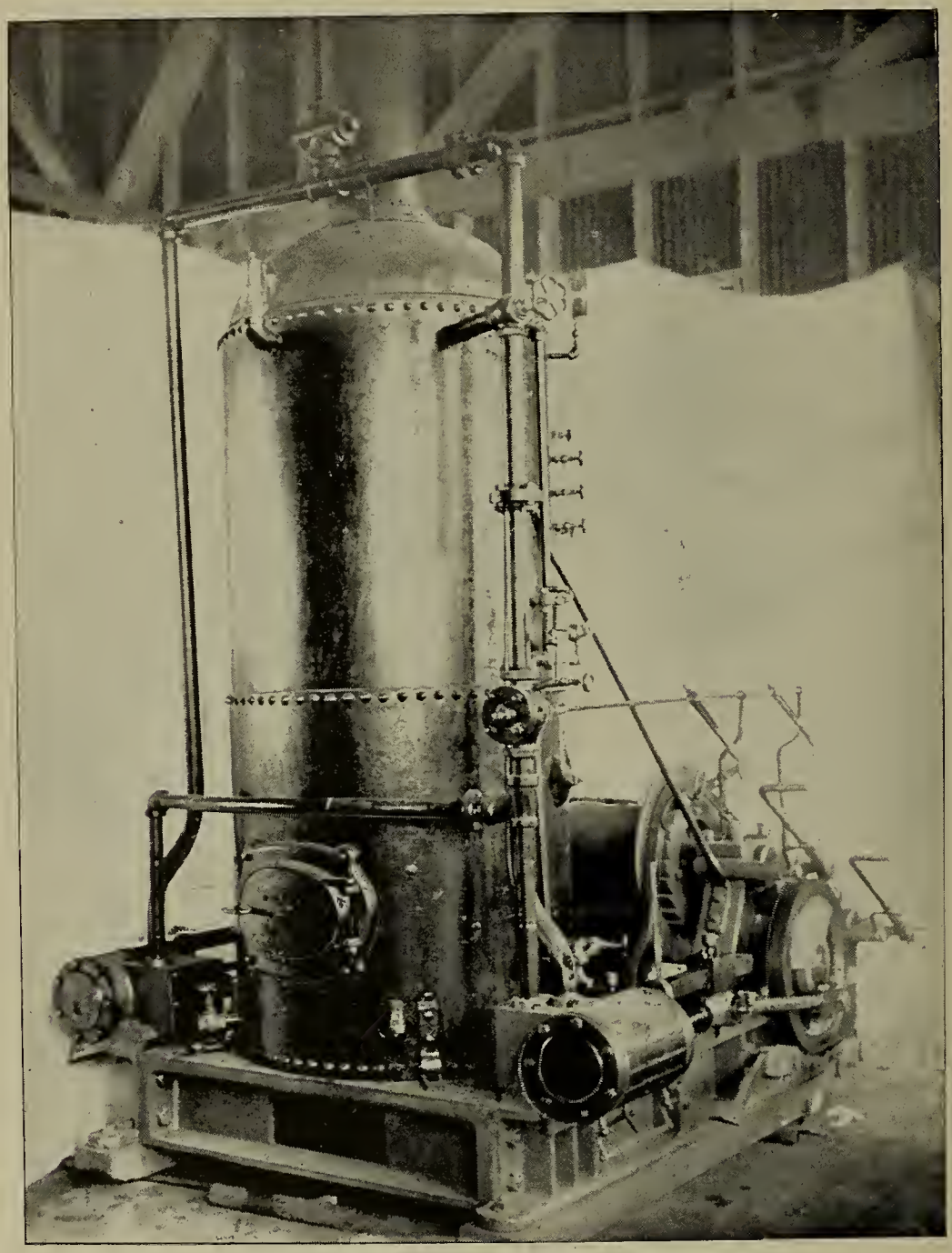
We build these of any capacity.

Diam. drums 30″.

Grooved for any size cable.

Prices.

Prices quoted on application, stating grade, number of cars to be controlled, weight of cars and loads, and length of incline.



DOUBLE CYLINDER, DOUBLE FRICTION DRUM HOISTING ENGINE,

WITH RATCHETS AND PAWLS, WITH OR WITHOUT ADJUSTABLE FOOT-BRAKE.

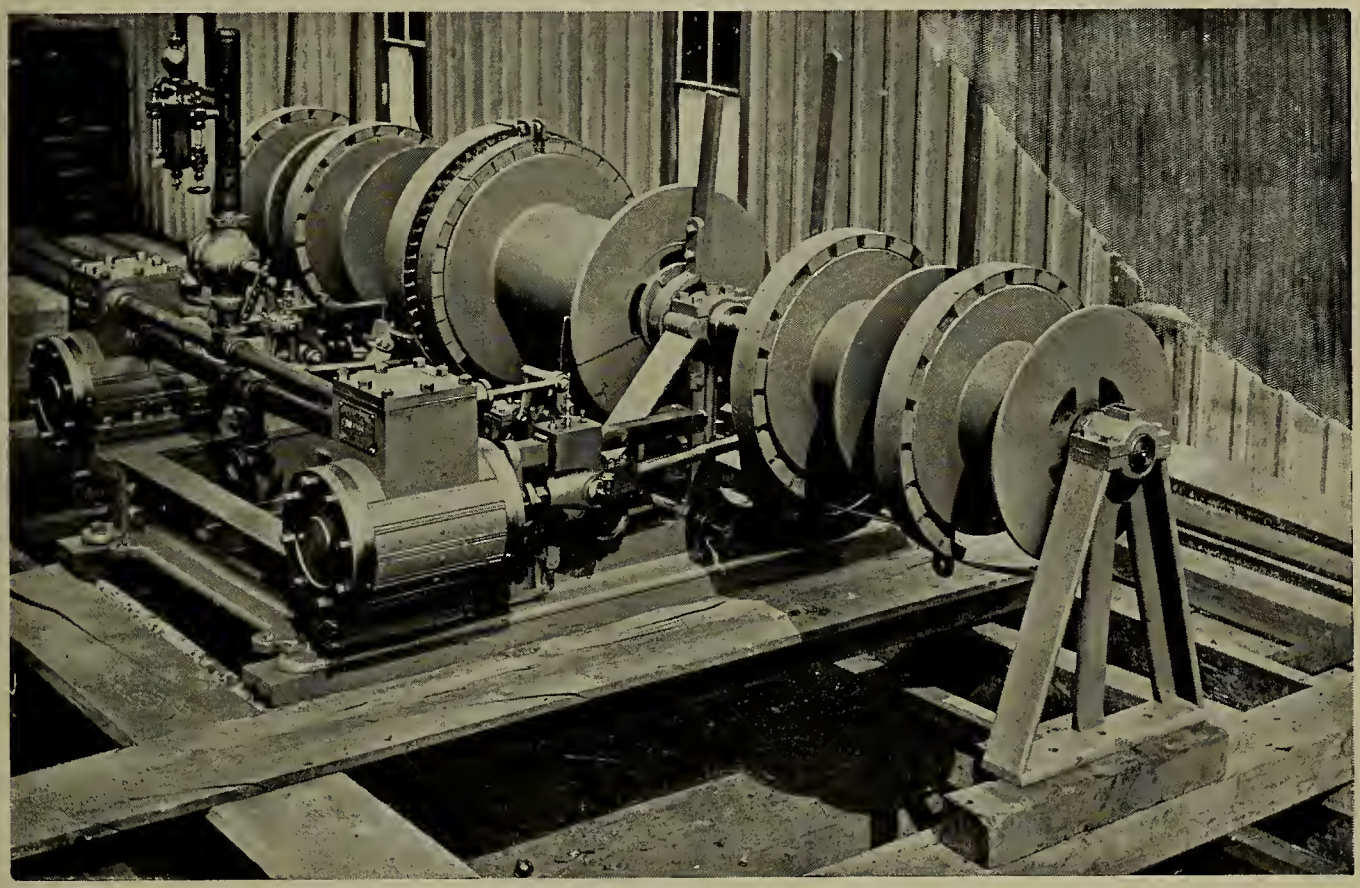
These engines are specially adapted to heavier work than the single cylinder before described; have balanced crank wheels, as all our engines have, ratchets, pawls, and winch heads on drum shafts, but are not provided with band wheel, unless ordered extra. Foot-brakes, wood-lined, furnished extra, if desired.

SIZES, DIMENSIONS, CAPACITIES, WEIGHTS, PRICES, ETC. NO BOILER.

Number.	Horse Power.	Dimensions of Cylinders.		Dimensions of Drums.			Dimensions of Bed Plates.		Shipping Weight, lbs.	Price of Engine complete with Ratchets and Pawls. No Boiler.	Price of Engine complete with Ratchets, Pawls and Foot-Brake. No Boiler.	Weight Hoisted Single Rope, lbs.
		Diameter Inches.	Stroke Inches.	Diameter Inches.	Length Inches.	Diameter Flanges.	Width Inches.	Length Inches.				
14 A	12	6¼	8	14	22	26	50	82	4000	$710	$760	3000
15	20	7	10	14	22	26	50	82	5500	800	850	4000
16	25	7¾	10	14	22	26	50	82	6000	865	915	5000
17	30	8½	10	14	22	26	50	82	6500	930	980	6000
18	40	9	12	18	28	30	62	97	10600	1,515	1,575	8000

SIZES, DIMENSIONS, CAPACITIES, WEIGHTS, PRICES, ETC. WITH BOILER.

Number.	Horse Power.	Cylinders.		Drums.			Weight Hoisted Single Rope, lbs.	Suitable Weight, Pile-Driv'g Hammer. Quick Work.	Dimensions of Boilers.					Floor Space.		Shipping Weight, complete, lbs.	Price, complete, Boilers, Fittings, Ratchets and Pawls. No Brake.	Price, complete, Boilers, Fittings, Ratchets, Pawls and Brake.
		Diameter Inches.	Stroke Inches.	Diameter Inches.	Length Inches.	Diameter Flanges.			Diameter.	Height.	No. of 2 inch tubes.	Height Furnace.	Diameter Furnace.	Width Inches.	Length Inches.			
50A	12	6¼	8	14	22	26	3000	2000	36	72	65	24	32	62	87	7500	$1,220	$1,270
51	20	7	10	14	27	26	5000	4000	40	84	82	28	35	62	87	9600	1,365	1,415
52	25	7¾	10	14	27	26	6250	5000	42	90	92	30	37	62	87	10500	1,440	1,490
53	30	8½	10	14	27	26	7500	6000	44	90	110	30	39	62	87	12000	1,520	1,570
54	40	9	12	18	33	30	10000	8000	48	102	124	32	42	66	101	18000	2,400	2,500



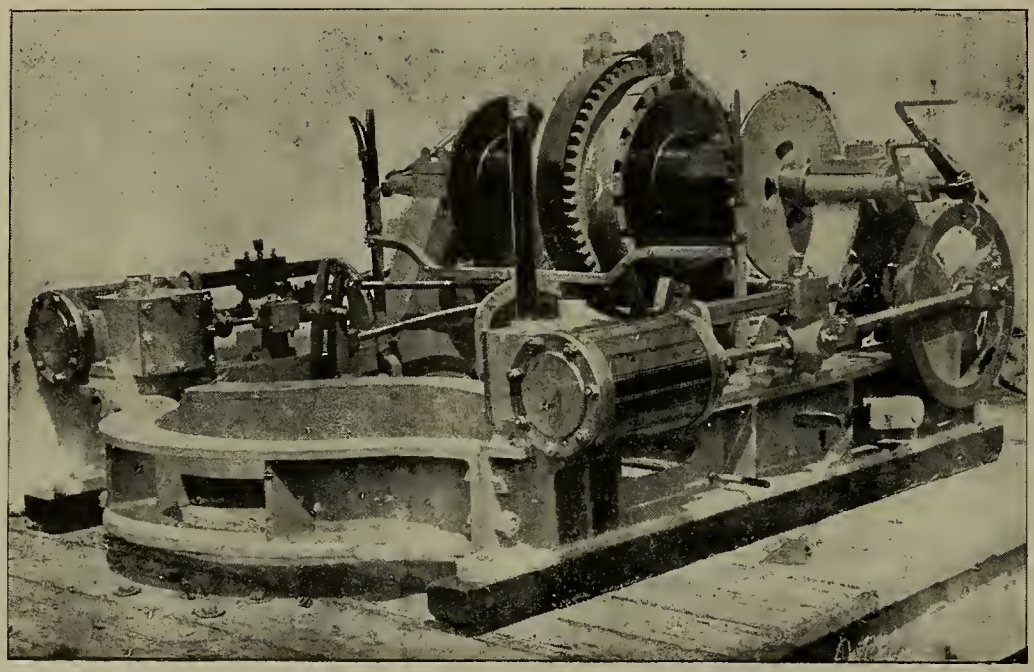
DOUBLE CYLINDER DREDGING ENGINE.

This engine is built for dredging and other hoisting purposes where more than the ordinary number of drums is required.

We build them of different sizes and with any number of drums.

Prices.

Quoted on application stating capacity of engine and number of drums wanted.



DUPLEX DOUBLE FRICTION DRUM HOISTING ENGINE,

WITH OR WITHOUT ADJUSTABLE FOOT-BRAKE.

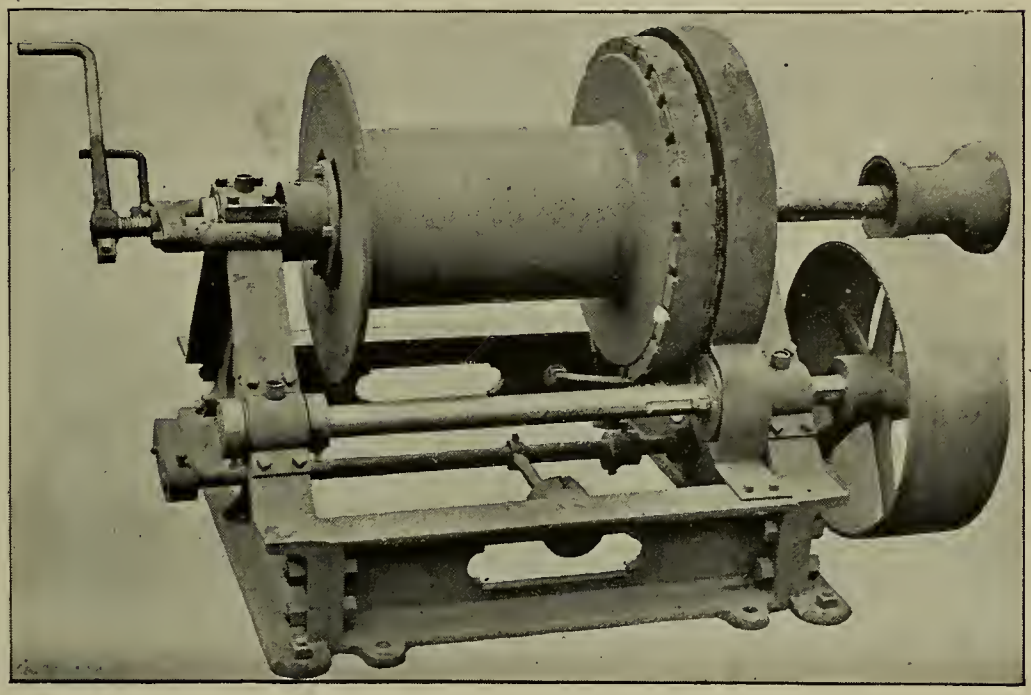
These engines, double cylinders with two drums *loose on one shaft*, are specially adapted for use in quarries, coal yards, bridge work, small dredges, docks, lighters, barges, scows, and general hoisting purposes where quick, short hauls are necessary. It is driven by one pinion and spur wheel, and the full power of both cylinders may be applied to either or both drums at one time, or divided between them as the requirements of the work may require. Each drum is fitted with our friction, and is loose on the shaft, except when in friction, and are wholly independent of each other. When both drums are used independently, they are worked by two operators, one on each side of the engine, each using the drum next to him; therefore each man handles his own throttle, friction lever and foot-brake independently of the other. Both drums are worked as effectively and with as much dispatch and safety as could be done by two separate machines, and space is very compact, having only one boiler to attend and supply fuel for, while two machines are working. The loads are hoisted by the drums being thrown into friction, then taken by the foot-brake and either held or landed.

SIZES, WEIGHTS, PRICES, ETC. NO BOILER.

Number.	Horse Power.	Dimensions of Cylinders.		Dimensions of Drums.			Hoisting capacity, each Drum worked together.	Hoisting capacity, each Drum worked singly.	Dimensions of Bed Plates.		Shipping Weight, lbs.	Price of Engine complete. No Boiler.	Price of Engine complete with Foot-Brake. No Boiler.
		Diameter Inches	Stroke Inches.	Diameter Inches.	Length Inches.	Diameter Flanges.			Length Inches.	Width Inches.			
65	8	5	8	12	12	22	1000	2000	56	59	3000	$660	$710
66	12	6¼	8	12	12	22	1500	3000	56	69	3750	705	755
67	16	6¼	10	12	12	22	1750	3500	56	69	4500	800	850
68	20	7	10	12	14	22	2000	4000	60	69	5000	880	930
69	25	7¾	10	12	14	22	2500	5000	60	69	5500	925	975
70	30	8½	10	12	14	22	3000	6000	60	69	6000	950	1,000

SIZES, WEIGHTS, PRICES, ETC. WITH BOILER.

Number.	Horse Power.	Cylinders.		Drums.			Hoisting capac'y, each Drum worked together.	Hoisting capac'y, each Drum worked singly.	Dimensions of Boilers.					Floor Space.		Shipping Weight, complete, lbs.	Price, complete, Engine, Boiler and Fittings. No Brake.	Price, complete, Engine, Boiler, Fittings and Foot-Brake.
		Diameter Inches.	Stroke Inches.	Diameter Inches.	Length Inches.	Diameter Flanges.			Diameter.	Height.	No. of 2 inch Tubes.	Height Furnace.	Diameter Furnace.	Width Inches.	Length Inches.			
71	12	6¼	8	12	12	22	1500	3000	36	72	60	24	31	56	74	5500	$1,170	$1,220
72	16	6¼	10	12	12	22	1750	3500	36	80	65	26	32	56	74	7500	1,220	1,270
73	20	7	10	12	14	22	2000	4000	40	84	82	28	35	60	74	8500	1,315	1,365
74	25	7¾	10	12	14	22	2500	5000	42	90	92	30	37	60	74	9000	1,415	1,465
75	30	8½	10	12	14	22	3000	6000	44	90	110	30	39	60	74	10000	1,510	1,560

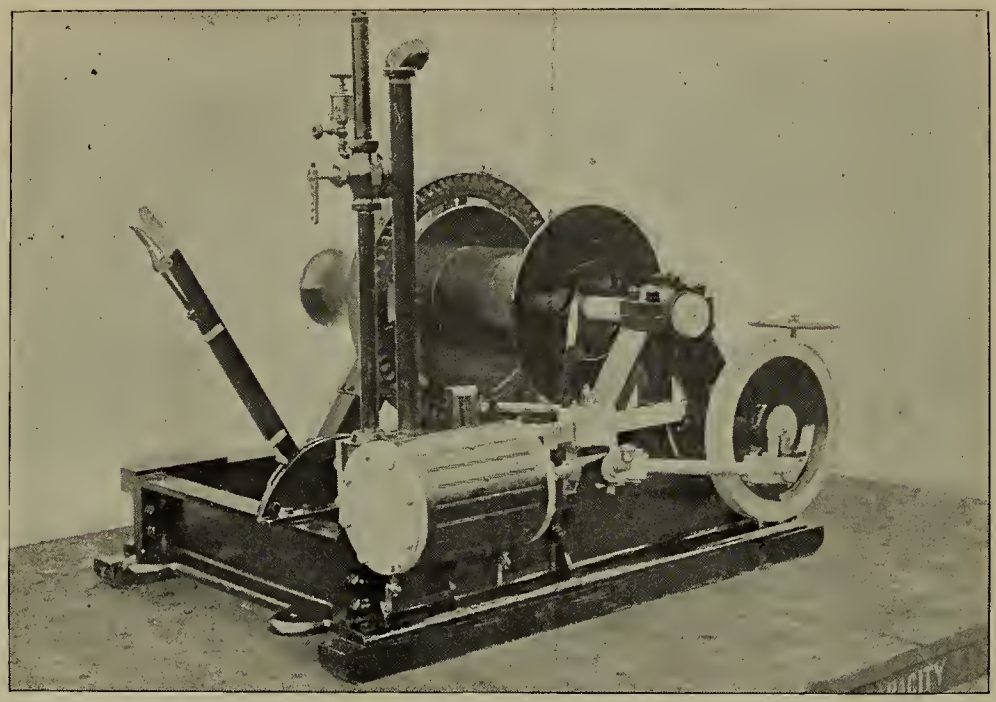


FRICTION DRUM BELT HOIST.

This hoister is of same design as the hoisting engine, except that the power is derived by belt over the fly-wheel on the main shaft. It is provided with friction and foot brake and a winch head on the drum shaft. The bed is strong and of our regular pattern, and the size of the pulley may be changed to meet requirements of more or less power and speed. This hoist is neat, complete, compact, and intended for use in factories, quarries, furnaces, docks, warehouses, ice houses, coal yards, and other places where power may be derived from line shaft.

SIZES, DIMENSIONS, CAPACITIES, WEIGHTS, SPEED, PRICES, ETC.

Number.	Dimensions of Drum.			Dimensions of Bed Plate.		Dimensions of Pulley.		Gearing.		Speed of Hoist per minute in feet.	Shipping Weight, lbs.	Price with Single Drum, with Foot Brake.	Weight Hoisted, Single Rope, lbs.
	Diameter Inches.	Length Inches.	Diameter Flanges.	Width Inches.	Length Inches.	Diameter Inches.	Width Face Inches.	No. of Cogs in Pinion.	No. of Cogs in Spur Wheel.				
34	12	18	22	38	42	22	8	16	72	140	1000	$250	1450
35	14	22	26	44	45	24	8	13	60	160	2000	350	2800
36	18	28	30	50	48	30	8	12	60	190	3000	450	4000



SINGLE CYLINDER, SINGLE DRUM, REVERSIBLE LINK MOTION HOISTING ENGINE.

WITH OR WITHOUT AUTOMATIC BRAKE.

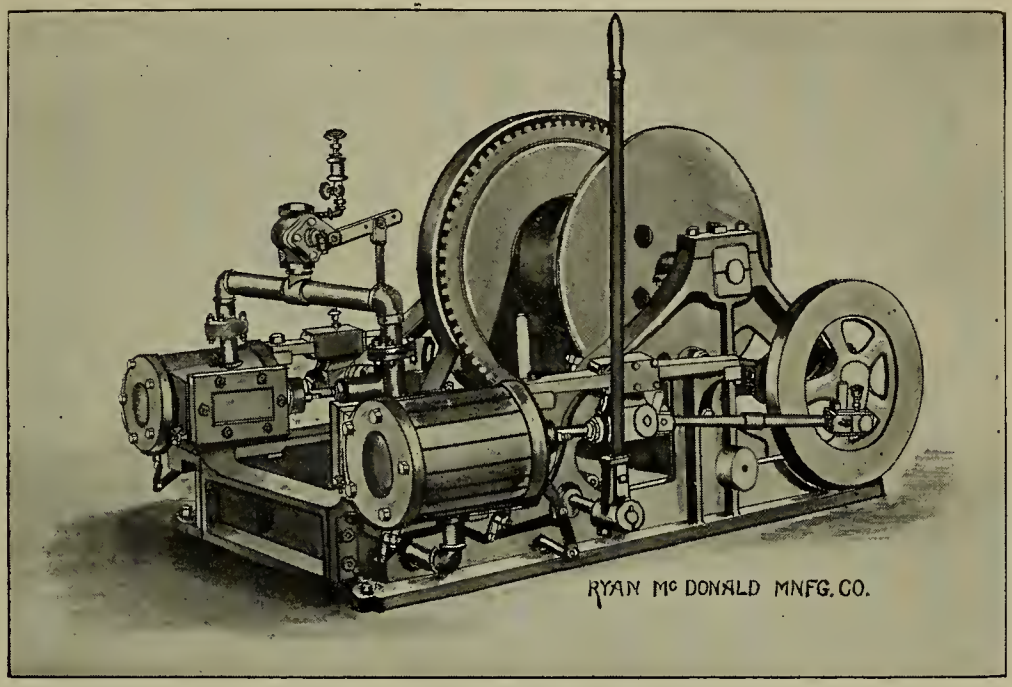
These engines are particularly adapted to any class of hoisting where the engine is to do all the work, hoisting, holding, and lowering, all done with single lever, where even an inexperienced man may safely handle the engine. For small mines, shafts, inclines, steam lighters, tunnels, warehouses, docks, and other general purposes they are specially fitted. Drums are lagged, when desired for mining purposes, at a small additional cost. A winch head is placed on end of drum shaft.

SIZES, DIMENSIONS, CAPACITIES, WEIGHTS, PRICES, ETC. NO BOILER.

Number.	Horse Power.	Dimensions of Cylinders.		Dimensions of Drums.			Dimensions of Bed Plates.		Shipping Weight, lbs.	Price of Engine complete. No Boiler. No Foot Brake.	Price of Engine complete. No Boiler. With Foot Brake.	Weight Hoisted Single Rope, pounds.
		Diameter Inches.	Stroke Inches.	Diameter Inches.	Length Inches.	Diameter Flanges.	Width Inches.	Length Inches.				
18A	4	5	8	12	18	22	34	59	1450	$365	$390	1200
18B	6	6¼	8	12	18	22	34	59	1700	415	440	1500
19	8	6¼	10	12	18	22	38	69	1750	440	465	1750
20	10	7	10	14	22	26	43	69	2300	465	490	2000
21	12½	7¾	10	14	22	26	43	69	2600	490	515	2500
22	15	8½	10	14	22	26	43	69	3000	515	540	3000
23	20	9	12	18	28	30	50	80	4000	735	785	4000

SIZES, DIMENSIONS, CAPACITIES, WEIGHTS, PRICES, ETC. WITH BOILER.

Number.	Horse-Power.	Cylinders.		Drums.			Weight Hoisted Single Rope, pounds.	Suitable Weight, Pile Driv'g Hammer. Quick Work.	Dimensions of Boilers.					Floor Space.		Shipping Weight, complete, pounds.	Price, complete, Boiler, Fittings. No brake.	Price, complete, Boiler, Fittings and Brake.
		Diameter Inches.	Stroke Inches.	Diameter Inches.	Length Inches.	Diameter Flanges.			Diameter.	Height.	No. of 2 inch Tubes.	Height Furnace.	Diameter Furnace.	Width Inches.	Length Inches.			
55A	6	6¼	8	12	18	22	1500	1250	28	72	40	24	24	42	65	3750	$660	$685
55B	8	6¼	10	12	18	22	2000	1400	30	72	45	24	26	44	74	4400	760	785
56	10	7	10	14	22	26	2500	2000	34	72	60	24	30	44	74	4750	800	835
57	12½	7¾	10	14	22	26	3000	2300	36	72	65	24	32	44	74	5500	950	975
58	15	8½	10	14	22	26	3750	3000	36	78	72	24	30	44	74	6500	1,025	1,050
59	20	9	12	18	28	30	5000	4000	40	84	82	28	35	54	84	8500	1.270	1,300



DOUBLE CYLINDER, SINGLE DRUM, REVERSIBLE LINK MOTION HOISTING ENGINE

WITHOUT BOILER, WITH OR WITHOUT AUTOMATIC BRAKE.

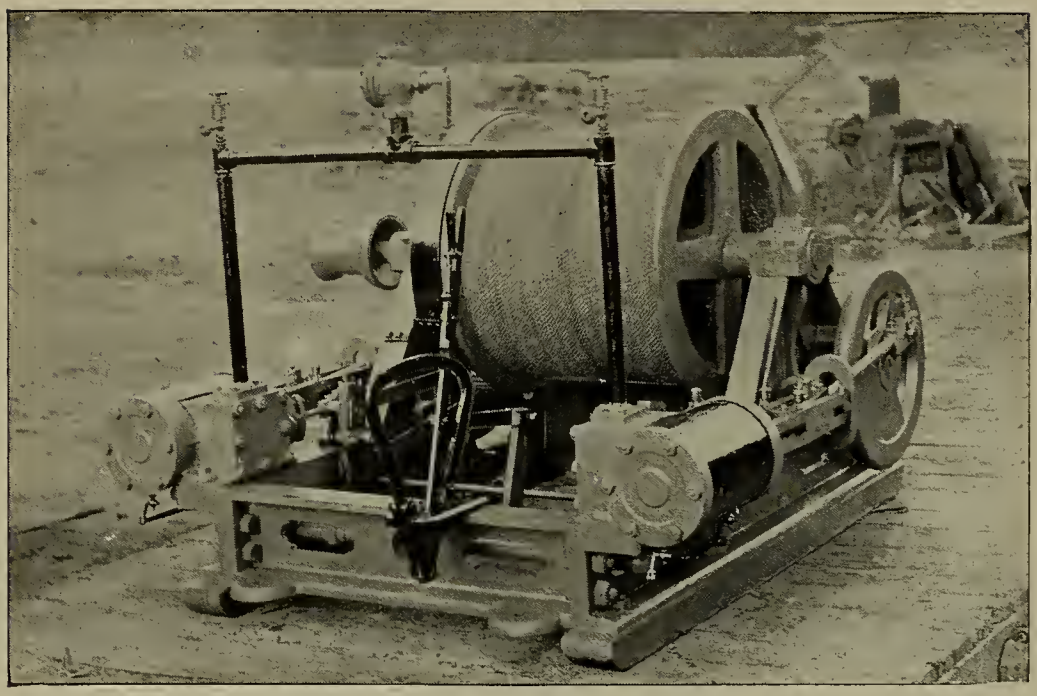
This engine is similar to the single cylinder, except it has double cylinders, and consequently double strength; is easily managed, and adapted to much heavier work. It starts, stops, and reverses with steady, smooth motion, and, where it is intended the engine shall do the entire work, is a favorite with the trade.

SIZES, DIMENSIONS, CAPACITIES, WEIGHTS, PRICES, ETC., NO BOILER.

Number.	Horse-Power.	Dimensions of Cylinders.		Dimensions of Drums.			Dimensions of Bed Plates.		Shipping Weight, lbs.	Price of Engine complete. No Boiler. No Foot Brake.	Price of Engine complete. No Boiler. With Foot Brake.	Weight Hoisted Single Rope, pounds.
		Diameter Inches.	Stroke Inches.	Diameter Inches.	Length Inches.	Diameter Flanges.	Width Inches.	Length Inches.				
23A	8	5	8	12	18	22	34	59	1800	$500	$515	1750
23B	12	6¼	8	12	18	22	34	59	2500	540	565	2500
24	16	6¼	10	14	22	26	48	69	2800	585	610	3000
25	20	7	10	14	22	26	48	69	3200	635	660	3500
26	25	7¾	10	14	22	26	48	69	3750	685	710	5000
27	30	8½	10	14	22	26	48	69	4500	730	760	6000
28	40	9	12	18	28	30	60	80	6500	1,025	1,075	8000

SIZES, DIMENSIONS, CAPACITIES, WEIGHTS, PRICES, ETC., WITH BOILER.

Number.	Horse-Power.	Cylinders.		Drums.			Weight Hoisted Single Rope, pounds.	Suitable Weight, Pile Driving Hammer. Quick Work.	Dimensions of Boilers.					Floor Space.		Shipping Weight, complete, pounds.	Price, complete, Boilers, Fittings. No Brake.	Price, complete, Boilers, Fittings and Brake.
		Diameter Inches.	Stroke Inches.	Diameter Inches.	Length Inches.	Diameter Flanges.			Diameter.	Height.	No. of 2 inch Tubes.	Height Furnace.	Diameter Furnace.	Width Inches.	Length Inches.			
59A	8	5	8	12	18	22	1750	1500	30	72	45	24	26	44	74	4800	$905	$930
60A	12	6¼	8	14	22	26	3000	2000	36	72	65	24	31	50	74	5500	1,000	1,025
60B	16	6¼	10	14	22	26	4000	3000	36	80	60	26	32	50	74	7500	1,225	1,250
61	20	7	10	14	22	26	5000	4000	40	84	82	28	35	60	74	8500	1,275	1,300
62	25	7¾	10	14	22	26	6250	5000	42	90	92	30	37	60	74	9000	1,320	1,350
63	30	8½	10	14	22	26	7500	6000	44	90	110	30	39	60	74	10000	1,425	1,475
64	40	9	12	18	28	30	10000	8000	48	102	124	32	42	64	84	15000	2,075	2,125



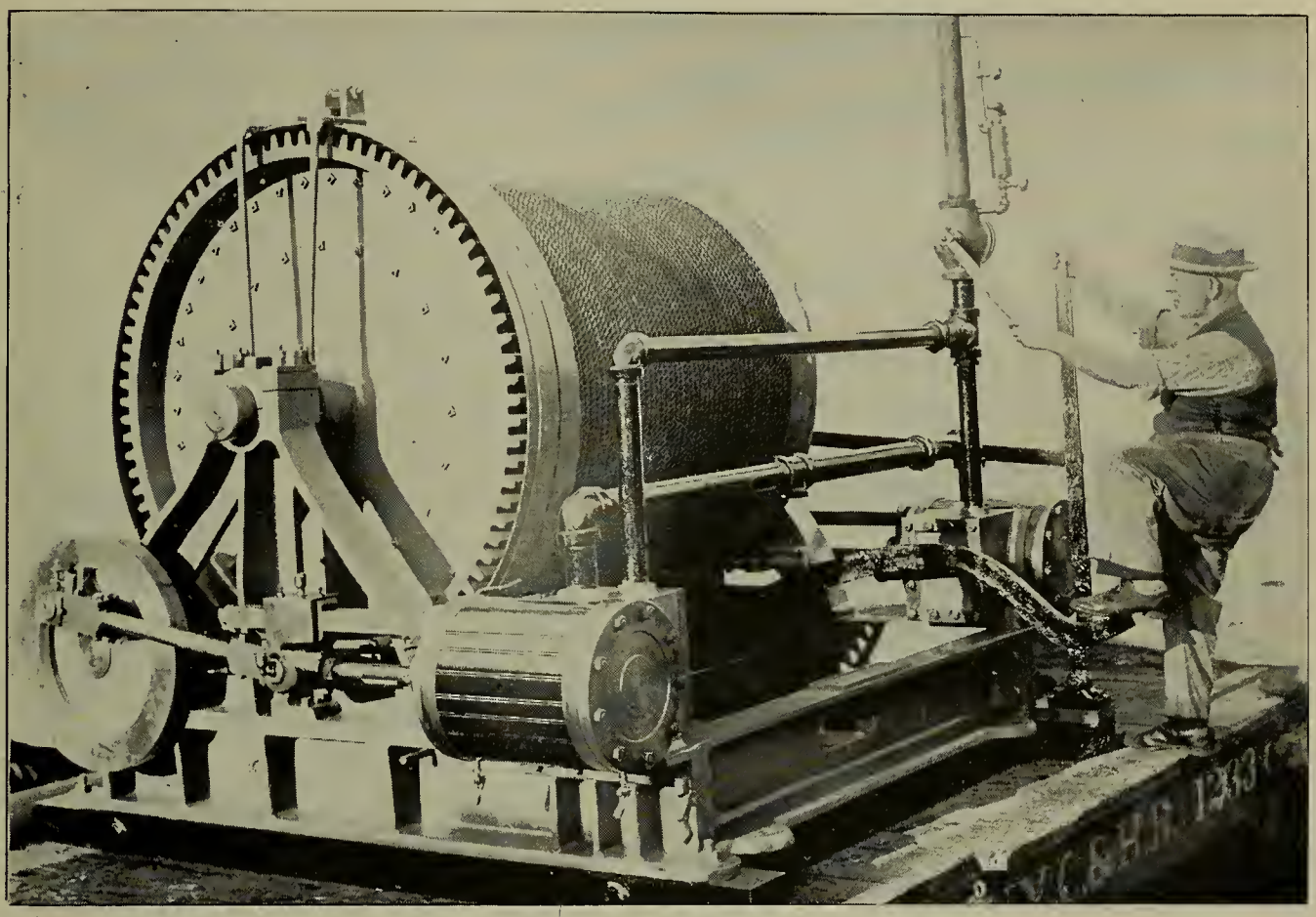
MINE HOISTING ENGINE—DOUBLE CYLINDER, REVERSIBLE LINK MOTION,

WITH OR WITHOUT AUTOMATIC BRAKE, AS DESIRED.

These engines having large drums, are particularly adapted for mines, inclines, and other rapid hoisting. The drums are either plain, lagged, or grooved as desired, and lagging or grooving is done for ¾, ⅞ or 1 inch wire rope, as ordered. The engines being reversible, two loads or hoists may be operated at the same time, one going down and the other coming up. They are very simple and strong in design and construction, rapid in motion, easily handled and occupy but comparatively little floor space, while the best results are produced in their efficient working. Each engine is fully equipped with fittings, and supplied with automatic brake, when so specified in order. These engines are made with *either friction or reversible link motion,* or both, as desired.

SIZES, DIMENSIONS, CAPACITIES, WEIGHTS, SPEED, PRICES, ETC.

Number.	Horse Power.	Dimensions of Cylinders.		Dimensions of Drum.			Dimensions of Bed Plate.		Shipping Weight, pounds.	Price of Engine complete.	No. ft. Drum will hold, Single Coil.			Speed per minute, in feet.	Weight Hoisted, Single Rope, pounds.
		Diameter Inches.	Stroke Inches.	Diameter Inches.	Length Inches.	Diameter Flanges.	Width Inches.	Length Inches.			¾ inch Wire Rope.	⅞ inch Wire Rope.	1 inch Wire Rope.		
29	20	7	10	30	26½	36	54	74	4500	$805	278	238	208	325	2000
30	25	7¾	10	30	26½	36	54	74	5500	900	278	238	208	325	3000
31	30	8½	10	30	26½	36	54	74	6500	1,050	278	238	208	325	4000
32	40	9	12	48	48	54	76	92	12000	1,510	804	687	603	517	4500
33	50	10	12	54	48	60	76	98	12500	1,610	904	775	678	581	5000



IMPROVED DOUBLE CYLINDER, FRICTION DRUM HOISTING ENGINE,

ADAPTED FOR HIGH SPEED HOISTING IN MINES AND INCLINES.

This engine is built on the same principle as our regular friction drum engines, but is specially adapted for high speed work.

Any size or capacity.

We furnish this engine with reversible link motion instead of friction, if desired, or with both friction and link motion.

Prices.

Quoted with specifications, on receipt of information stating load to be lifted, speed required, and depth of shaft or incline.

IMPROVED PORTABLE HOISTING ENGINE.

The above cut represents our Improved Portable Hoisting Engine mounted on wheels, with steel truck-springs, pole and whiffletrees complete.

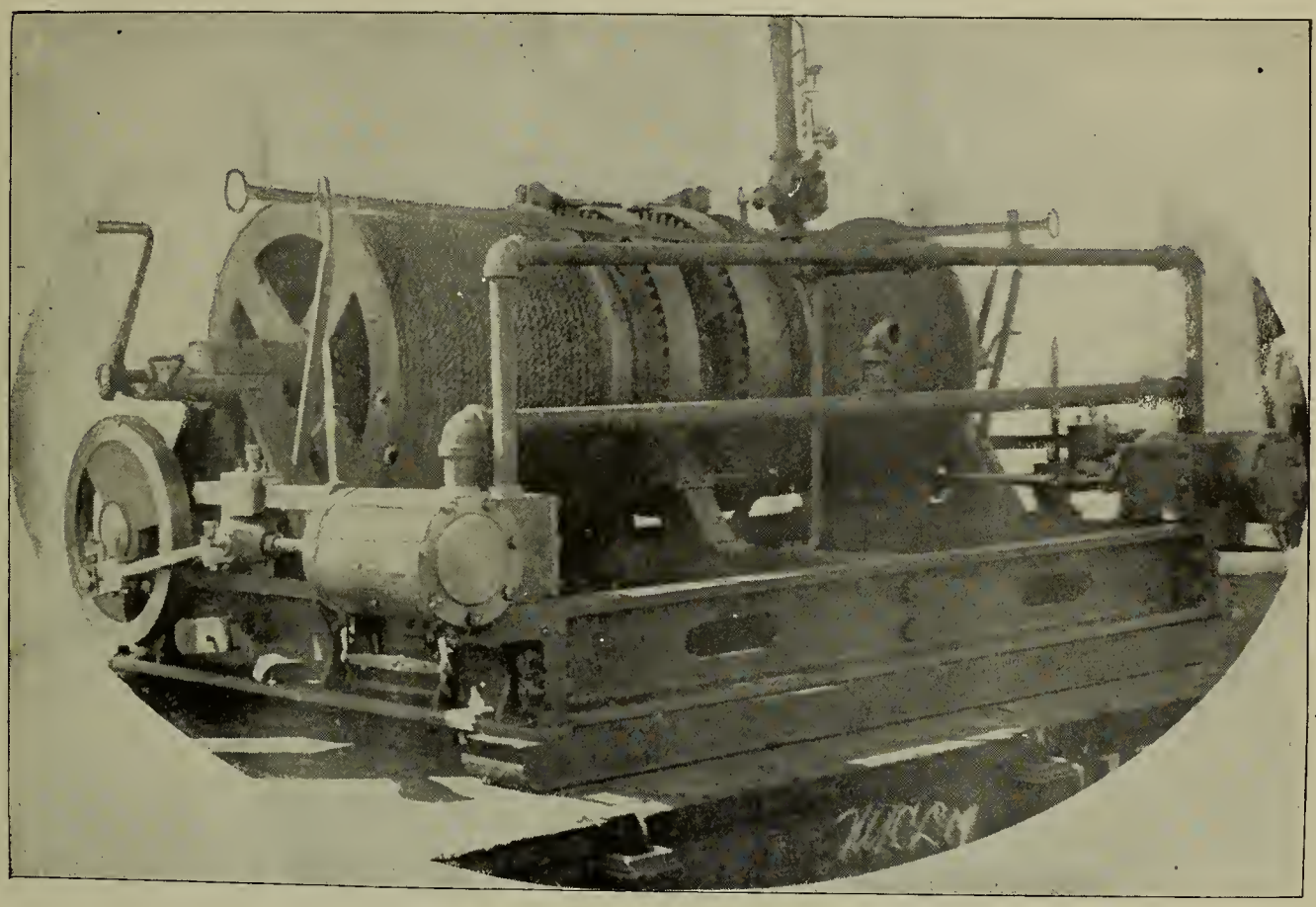
The boiler and engine are mounted on one solid cast frame; and the machine is specially strong, compact and handy.

When hoisting, frame rests on suitable chocks provided for raising weight from the springs.

TABLE OF PRICES, SIZES, ETC.

Number.	Horse Power.	Cylinders.		Drums.			Weight Hoisted, Single Rope, pounds.	Dimensions of Boilers.					Prices.
		Diameter Inches.	Stroke Inches.	Diameter Inches.	Length Inches.	Diameter Flanges.		Diameter.	Height.	No. of 2 inch Tubes.	Height Furnace.	Diameter Furnace.	
80	8	5	8	12	18	22	1750	30	72	45	24	26	$1500
81	12	6¼	8	14	22	26	3000	36	72	60	24	31	1700
82	16	6¼	10	14	22	26	4000	36	80	65	26	32	1800
83	20	7	10	14	22	26	5000	40	84	82	28	35	2400
84	25	7¾	10	14	22	26	6250	42	90	92	30	37	2500
85	30	8½	10	14	22	26	7500	44	90	110	30	39	2600

Price of mounted engines completely housed—add one hundred dollars to above prices.



DOUBLE CYLINDER, DOUBLE DRUM MINE HOISTING ENGINE.

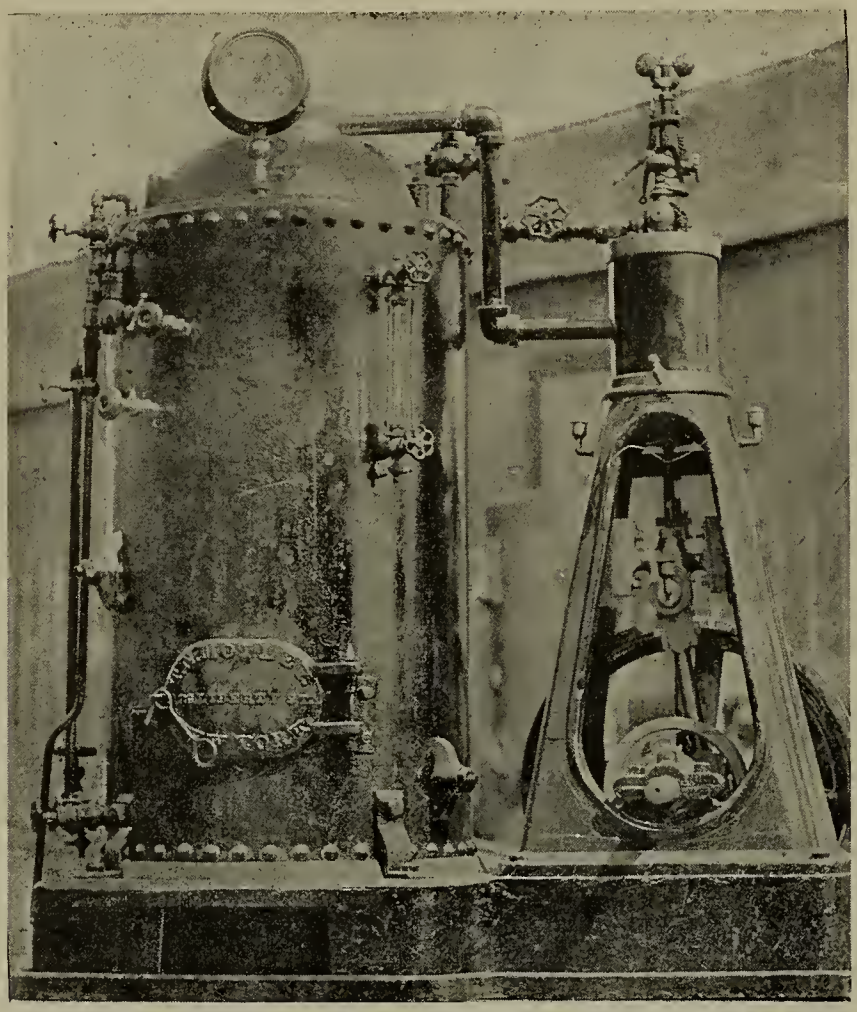
The above cut represents our double cylinder, double drum mine hoisting engine, which we furnish either with friction as shown in cut, or with reversible link motion instead, at same price.

This engine is specially designed for double compartment shafts and double track inclines, where it is desired to handle two loads at once independent of each other, or to lower one load and raise the other.

This machine is very strong and compact and is easily transported and erected.

TABLE OF PRICES, SIZES, WEIGHTS, ETC.

Number.	Horse-Power.	Size of Cylinders.		Sizes of Hoisting Drums. Each Drum.		Average Hoisting Capacity, pounds.	Average Hoisting Speed, per Minute.	Estimated Shipping Weight, pounds.	Price Complete.
		Diameter Inches.	Stroke Inches.	Diameter Inches.	Length Inches.				
90	20	7	10	30	30	3000	300	8000	$1,500
91	30	9	12	48	30	4000	350	10000	2,000
92	50	12	15	60	42	6000	400	25000	3,000
93	75	14	18	72	48	7000	450	35000	4,000



DANDY VERTICAL ENGINE AND BOILER,

FOR PRINTING PRESSES, FANS, BLOWERS, PUMPS, STEAM DRILLS, ETC.

We call particular attention to simple construction, symmetrical and compact form.

BOILER is of guaranteed tensile strength and is submitted to hydrostatic and steam test before leaving works.

ENGINE is of the best materials and workmanship throughout.

BASE is particularly compact and strong—so constructed that it can be bolted to the floor if desired, altl ough this is not necessary.

These engines and boilers are manufactured on the interchangeable part plan, so that customers may have complete outfit, or the boiler or engine separately, and we make special base for either if desired.

BOILERS—TABLE OF SIZES, ETC.

Number.	Horse Power.	Boiler. Diameter, inches.	Boiler. Height, inches.	Height Smoke Hood.	Tubes. Number.	Tubes. Size.	Tubes. Length.	Thickness Shell.	Thickness Tube-Heads.	Fire-box Diameter, inches.	Fire-box Height, inches.	Weight of Boiler.	Height of Base.	Total Height, Inches.
1	4	22	40	7½	60	1½	24	3-16	¼	19	16	500	7½	55
2	7	30	55	10½	60	2	34	¼	5-16	26	20	1000	8	73½
3	9	30	62	10½	72	2	40	¼	5-16	26	20	1200	8	80

ENGINES—TABLE OF SIZES, ETC.

Number.	Horse Power.	Cylinder Diameter, inches.	Cylinder Stroke, inches.	Steam Pressure, lbs.	Pipes. Steam, inches.	Pipes. Exhaust, inches.	Revolutions per minute.	Fly-wh'l Diameter, inches.	Fly-wh'l Wd. Face inches.	Base. Length, inches.	Base. Width, inches.	Base. Height, inches.	Base. Weight, lbs.
1	4	3½	5	60	¾	1	300	22	5	50	27	7½	344
2	6	5	6	60	1	1¼	275	25	6	62	36	8	585
3	8	6	6	60	1½	1½	275	26	6	62	36	8	585

No. 1, 4 HP. ENGINE, Boiler and Base complete, full fittings, weight 1,500 lbs., $265 00

Engine alone, on single base,	140 00
Boiler alone, on single base,	140 00
Base for Boiler and Engine,	22 50
Base for Engine alone,	9 50
Base for Boiler alone,	14 00
Cylinder Heads, each,	3 50
Steam Chest Covers, each,	4 25
Piston Rings, each,	1 00
Cross Heads, complete, each,	5 60
Crosshead Gibs, each,	2 75
Fly Wheels, each,	12 50
Crank Shafts, complete, (2 wheels) each,	15 00
Fire Door, lined,	2 00
Grates, per set,	2 75
Governor Belt,	50
Connection Brasses, upper,	2 50
" " lower,	3 00

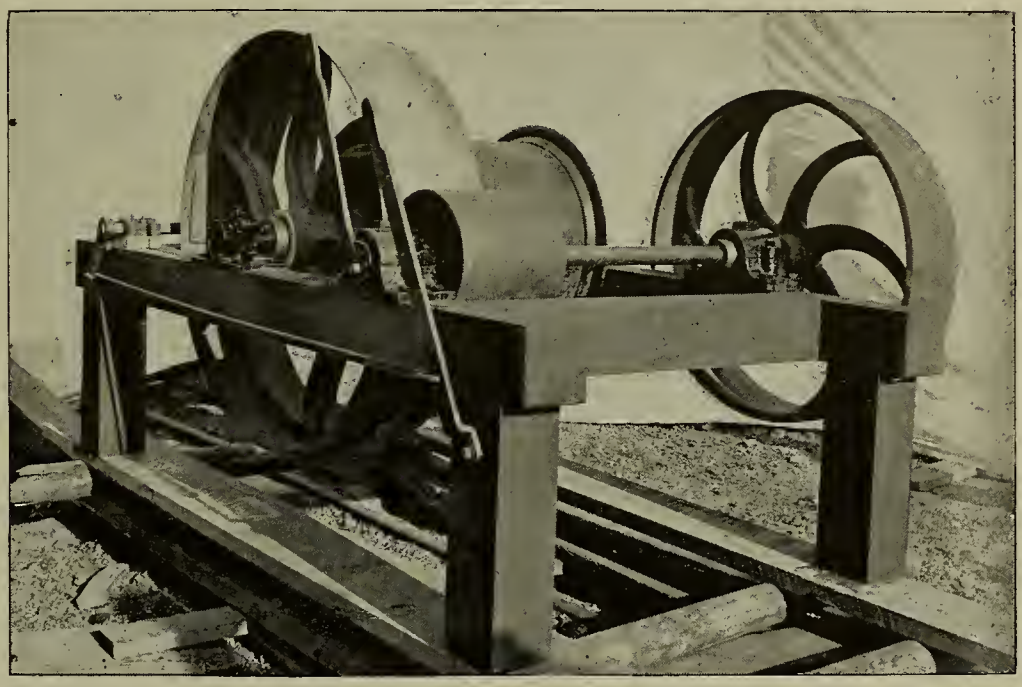
No. 2, 6 HP. ENGINE, Boiler and Base complete, full fittings, weight 3,200 lbs., $395 00

Engine alone, on single base,	220 00
Boiler alone, on single base,	185 00
Base for Boiler and Engine,	37 50
Base for Engine alone,	18 00
Base for Boiler alone,	23 00
Cylinder Heads, each,	4 00
Steam Chest Covers, each,	4 50
Piston Rings, each,	1 15
Cross Heads, complete, each,	6 75
Crosshead Gibs, each,	3 00
Fly Wheels, each,	18 00
Crank Shafts, complete, (2 wheels) each,	20 00
Fire Door, lined,	3 00
Grates, per set,	6 50
Governor Belts, each,	75
Connection Brasses, upper,	3 50
" " lower,	4 00

No. 3, 8 HP. ENGINE, Boiler and Base complete, full fittings, weight 3,800 lbs., $440 00

Engine alone, on single base,	225 00
Boiler alone, on single base,	225 00
Base for Boiler and Engine,	37 50
Base for Engine alone,	18 00
Base for Boiler alone,	23 00
Cylinder Heads, each,	5 00
Steam Chest Covers, each,	5 25
Piston Rings, each,	1 25
Cross Heads, complete, each,	7 50
Crosshead Gibs, each,	3 25
Fly Wheels, each,	22 50
Crank Shafts, complete, (2 wheels) each,	25 00
Fire Door, lined,	3 00
Grates, per set,	6 50
Governor Belts, each,	1 00
Connection Brasses, upper,	3 75
" " lower,	4 25

SELF-CONTAINED WINDING DRUM.

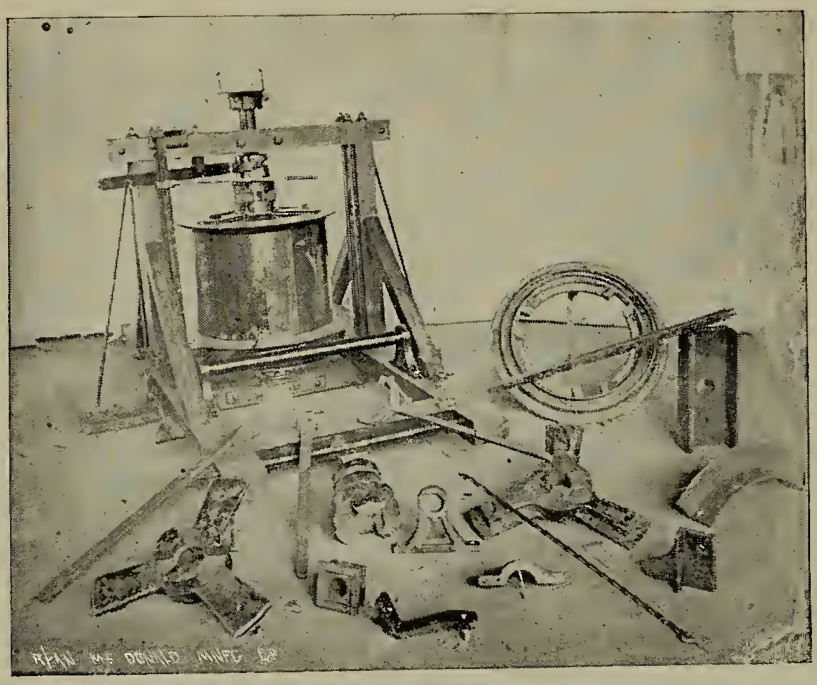


REGULAR SIZES.

Diam. of Drum.	Length of Drum.	Price.
20 in	20 in	$135 00
20 in	24 in	140 00
20 in	30 in	145 00
20 in	36 in	150 00

This Drum is strongly constructed upon a solid oak frame base. It is furnished complete as shown.

The main shaft upon which the drum and large friction pulley are keyed is 2½ in. rd. steel; the countershaft 2 in. The large friction pulley is 42 in. diameter and 10 in. face; the small friction pulley is 10 in. diameter and 10 in. face; the driving pulley is 30 in. diameter and 6 in. face, and should be run about 110 revolutions per minute—but one lever is required to operate it.



HOISTING DRUMS.

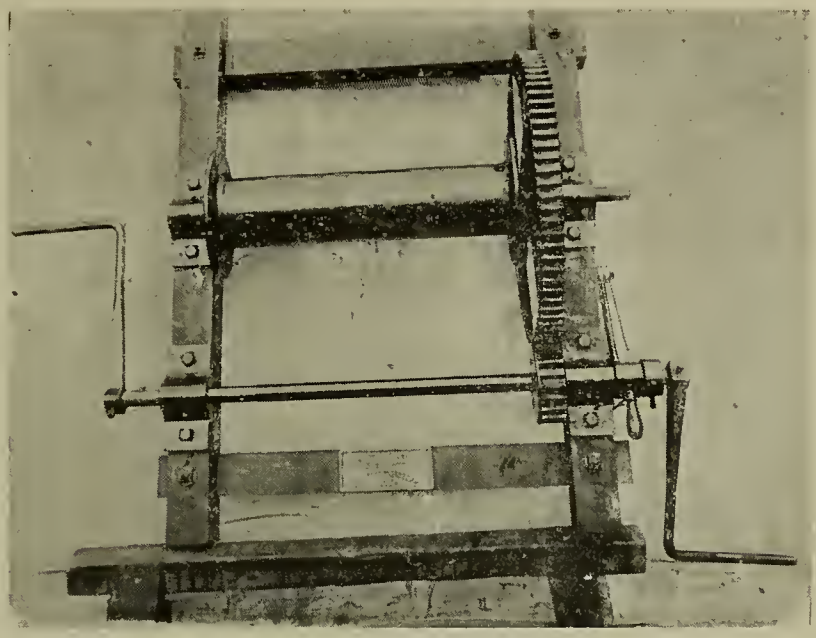
The frame is made from select extra quality of white oak to secure the greatest strength with least bulk. The drum is provided with foot-lever to throw in or out of gear, and also with a simple, strong and handy brake. The woodwork of our Drums is all dressed, and, with the iron work, is thoroughly painted.

The drum-barrel is twenty-four inches in diameter and 20 inches between flanges; thus every revolution will lift or haul the load six and one-third feet, while with rope of different sizes it will do the lifts and hauls shown in accompanying table.

These drums have a vertical lifting capacity of from two to two and one-half tons.

Capacity of Drum.					
No. of Revolutions.	2-Inch Rope.	1¾-Inch Rope.	1½-Inch Rope.	1¼-Inch Rope.	1-Inch Rope.
1	6.81	6.73	6.68	6.61	6.55
5	34.08	33.71	33.38	33.05	32.73
10	68.07	67.41	66.76	66.11	65.45
15	107.34	104.77	100.14	99.16	98.18
20	146.61	143.06	137.45	134.83	130.90
25	191.12	185.02	174.75	171.16	166.24
30	235.62	227.89	212.06	207.48	201.59
35	.....	276.76	249.36	246.74	236 93
40	.....	.....	286.67	287.97	272.27
45	.....	.....	.....	329.20	310.23
50	.....	.....	.....	370.43	348.19
55	.....	.....	.....	.....	386.15
60	.....	.....	.....	.....	424.11
65	.....	.....	.....	.....	464.69
70	.....	.....	.....	.....	505.27
75	.....	.....	.....	.....	545.85
80	.....	.....	.....	.....	586.43

Price.		
	Weight 1,200 lbs.	$62 50
Parts—	Shafts, each,	7 50
	Heads, for lever, each,	4 35
	Clutches, each,	3 75
	Spider Clutches, each,	4 50
	Top Heads, each,	5 00
	Bottom Heads, each,	5 00
	Base Spiders, each,	3 75
	Friction Circles, (¼) each,	1 00
	Boxes, each,	1 00
	Top Box, Brake Shaft,	70
	Brake Shaft,	1 30
	Hand Lever,	1 00
	Brake Strap,	1 50
	Cams, each,	20
	Steps or Foot Blocks, each,	1 00
	Clutch Levers, each,	1 60
	Foot Levers, each,	1 25
	Lever Rods, each,	40
	Collars, each,	60
	Brake Fasteners, each,	65
	Clutch Lever Bearings, each,	50
Discount.....	.... Terms.....	.....



DERRICK WINCHES.

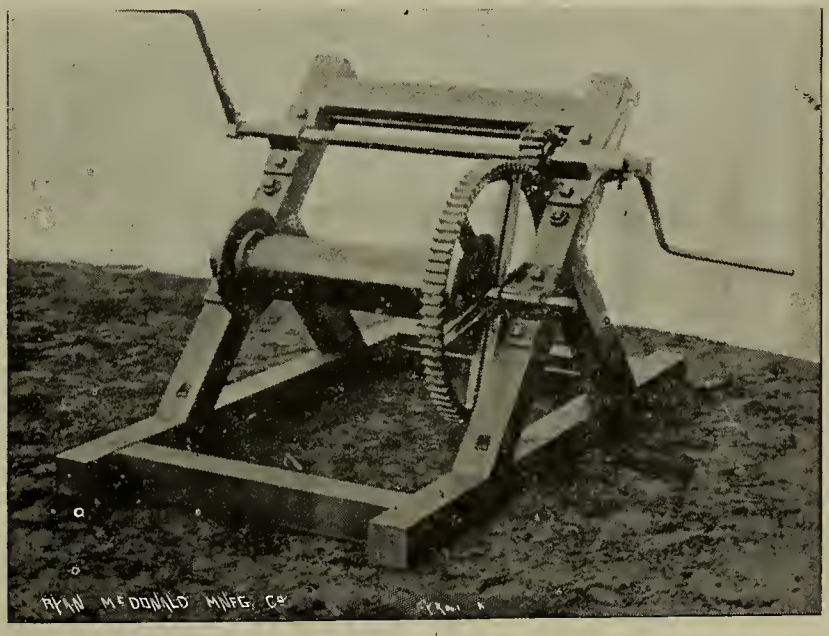
FOR STONE QUARRIES, LOADING CARS, MASONRY WORK AND BUILDERS' USE.

The cut represents our Improved Derrick Winch, single-geared. This little machine is a model of simplicity and strength, having a capacity of two tons. It is made from the best materials; the frame being 4 x 4 select seasoned oak and 40 x 50 inches outside dimensions. The drum is 26 inches long between 12-inch flanges, and is 6 inches in diameter. The cranks are 18 inches leverage, and the gears are 4 to 1. The shafts are made from the best refined wrought iron 1½ inches in diameter, and the boxes are metal-lined.

If heavier lifts are to be made than the capacity of this Winch warrants, our Double-Geared Winch will be found to be the article required, as the capacity is trebled by the double-gear.

PRICES.

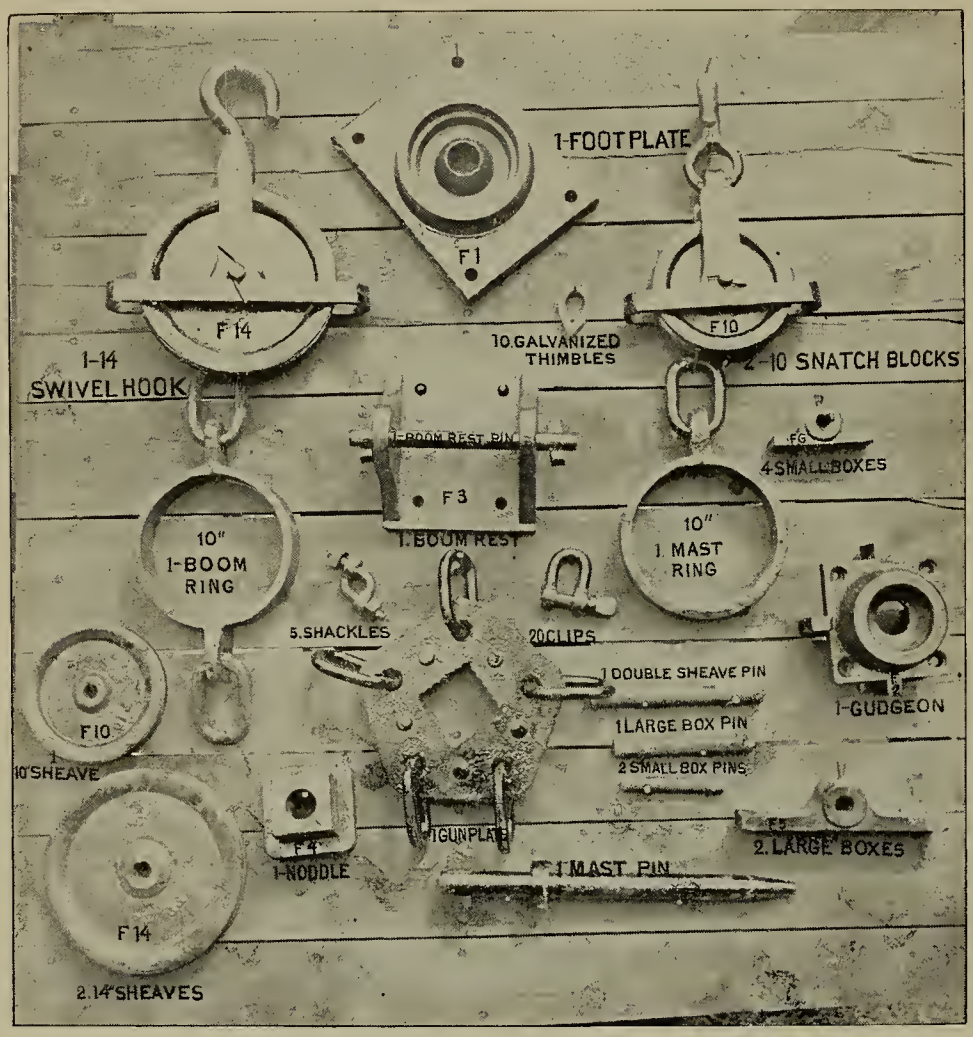
Weight, 300 lbs.,	$30 00
Same, with band brake,	34 00
Same, with Ratchet, Pawl and Brake,	36 00
Double Geared Winch,	50 00
Same, with Ratchet and Brake,	56 00
PARTS—Gear,	6 00
Pinion,	1 75
Crank Shaft,	2 50
Drum Shaft,	$2 00
Cranks, each,	1 50
Boxes, each.	1 00
Brake Wheel,	2 00
Brake Band,	1 00
Brake Lever,	75
Discount.....	.....



INCLINED WINCHES.

We build winches like the above cut on inclined frame to stake down to ground or fasten to floor.

PRICES.—Add $6.00 to list-prices of Upright Winches. Write for Discounts.



DERRICK FITTINGS.

Several years' experience on masonry work with derricks of all kinds has resulted in the above style of fixtures.

They are of the most approved patterns, and have in every instance given entire satisfaction.

The illustrations show the parts. The ***Foot Plate*** has a cone-shaped bearing upon which the ***Gudgeon*** fits, making a socket-joint with a perpetual oil cup; the prongs of the gudgeon holding it firmly in position in the bottom of the mast. The ***Boom Rest*** is placed against the mast. The ***Boxes*** between which plays the 10-inch mast-sheave. The ***Noddle*** at the top of the mast, on which the wrought iron ***Guy-Plate*** is set, and is fastened to the mast-head by the wrought-iron ***Pin***. The guys extend from the guy-plate to any anchorage desired. The ***14-inch Sheaves*** are fitted one in the base or foundation of the derrick, and the other in the ***Swivel-Hook*** or ***Gin-Block***, suspended from the boom. The ***10-inch Sheaves*** are the mast-sheave, described above, and the boom-sheave, near the outer end of the boom. This is one arrangement of the parts, but users of these fittings sometimes reverse the arrangement of the sheaves.

Where our Derrick Winch is used on the derrick, it does away with the 14-inch base-sheave.

In roping the derrick, the rope passes from the drum, under the 14 inch base-sheave, up the mast, over the mast-sheave, thence over the boom-sheave, down, around the swivel-sheave or gin-block, and to the end of the boom, where it is made fast to the swivel-ferrule. The boom is hoisted or lowered by means of a block and fall, or boom-hoist.

Sheaves for any size wire or manilla rope, from ⅝ to 2 inches in diameter, will be furnished extra.

PRICES AND CAPACITIES.

Parts.	2½ Ton.		5 Ton.		10 Ton.		Parts.	2½ Ton.		5 Ton.		10 Ton.	
	Wght.	Price.	Wght.	Price.	Wght.	Price.		Wght.	Price.	Wght.	Price.	Wght.	Price.
Foot Plate, cast iron	65 lbs.	$3 25	86 lbs.	$4 30	130 lbs.	$6 65	Small Box Pin, steel	2 lbs.	$ 20	2 lbs.	$ 20	3 lbs.	$ 30
Gudgeon, " "	45 "	2 25	59 "	2 95	90 "	4 50	Guy Plate, w'ght iron, 5 links	40 "	4 95	40 "	4 95	50 "	6 00
Boom Rest, " "	55 "	2 75	81 "	4 05	120 "	6 00	Mast Pin, " "	17 "	1 75	25 "	2 50	35 "	3 50
14-in. Sheave, " "	31 "	1 55	31 "	1 55	35 "	1 75	Mast Ring, " " 10-in., 1 link	30 "	4 50	30 "	4 50	40 "	7 00
10-in. " " "	19 "	1 00	19 "	1 00	25 "	1 25	Boom Ring, wrought iron, 10-in., 2 links	40 "	5 50	40 "	5 50	50 "	8 00
8-in. " " "	16 "	80	16 "	80	20 "	1 00	Swivel Hook, wrought iron, 14-inch	62 "	8 00	62 "	8 00	75 "	10 00
Large Sheave Boxes, cast iron, per pair	36 "	1 80	36 "	1 80	40 "	2 00	Snatch Block, wrought iron, 10-in., no Swivel	32 "	5 00	32 "	5 00	40 "	7 00
Small Sheave Boxes, cast iron, per pair	16 "	80	16 "	80	20 "	1 00	5 Shackles, wrought iron	13 "	3 50	13 "	3 50	13 "	3 50
Noddle, cast iron	17 "	85	17 "	85	25 "	1 25	20 Clips, " "	51 "	8 00	51 "	8 00	51 "	8 00
Double Sheave Pin, steel	7½ "	75	7½ "	75	10 "	1 00	10 Thimbles, galvanized iron.	6 "	1 50	6 "	1 50	6 "	1 50
Boom Rest " "	4½ "	45	5 "	50	7½ "	75							
Large Box " "	3 "	30	3 "	30	5 "	50							

PRICE one complete set 2½ tons capacity fittings, comprising 1 Foot Plate, 1 Gudgeon, 1 Boom Rest, 2 14-in. Sheaves, 1 10-in. Sheave, 1 8-in. Sheave, 2 Large Sheave Boxes, 4 Small Sheave Boxes, 1 Noddle, 1 Double Sheave Pin, 1 Boom-Rest Pin, 2 Small Box Pins, 1 Guy Plate, 1 Mast Pin, 1 Mast Ring, 1 Boom Ring, 1 14-in. Swivel Hook, 1 10-in. Snatch Block, 5 Shackles, 20 Thimbles, and weighing 650 lbs. $60 00

PRICE one complete set 5 ton capacity, comprising same pieces as 2½ ton set, and weighing 700 lbs. 65 00

PRICE one complete set 10 ton capacity, comprising same pieces as 2½ ton set, and weighing 900 lbs. 80 00

WRITE FOR DISCOUNTS.

STEEL AND IRON HOISTING ROPE, WITH 19 WIRES TO THE STRAND.

CAST STEEL.								IRON.							
Diameter.	Circumference.	Weight per foot in lbs. of Rope with Hemp Centre.	Breaking Strain in Tons of 2,000 lbs.	Proper Working Load in Tons of 2,000 lbs.	Circumference of Hemp Rope of equal Strength.	Min. size Drum or Sheave in Feet.	Price per Foot.	Diameter.	Circumference.	Weight per foot in lbs. of Rope with Hemp Centre.	Breaking Strain in Tons of 2,000 lbs.	Proper Working Load in Tons of 2,000 lbs.	Circumference of Hemp Rope of equal Strength.	Min. size Drum or Sheave in Feet	Price per Foot.
2¼	6¾	8.00	155	31	. ..	9	$1.52	2¼	6¾	8.00	74.	15	15½	8	$1.00
2	6	6.30	125	25	....	8	1.20	2	6	6.30	65.	13	14½	7	.78
1¾	5½	5.25	106	21	15¾	7½	1.00	1¾	5½	5.25	54.	11	13	6½	.69
1⅝	5	4.10	86	17	14½	6	.80	1⅝	5	4.10	44.	9	12	5	.58
1½	4¾	3.65	77	15	13½	5½	.71	1½	4¾	3.65	39.	8	11½	4¾	.53
1⅜	4⅜	3.00	63	12	12¼	5¼	.60	1⅜	4⅜	3.00	33.	6½	10¼	4½	.43
1¼	4	2.50	52	10	11½	5	.50	1¼	4	2.50	27.	5½	9½	4	.36
1⅛	3½	2.00	42	8	10	4½	.41	1⅛	3½	2.00	20.	4	8	3½	.29
1	3⅛	1.58	33	6	9¼	4	.34	1	3⅛	1.58	16.	3	7	3	.26
⅞	2¾	1.20	25	5	8	3¾	.27	⅞	2¾	1.20	11.5	2½	6	2¾	.20
¾	2¼	.88	18	3½	6½	3½	.21	¾	2¼	.88	8.64	1¾	5	2½	.16
⅝	2	.60	14	2½	5¼	3	.18	⅝	2	.60	5.13	1¼	4½	2	.14
9/16	1⅝	.44	9	1½	4¾	2¾	.17	9/16	1⅝	.44	4.27	¾	4	1¾	.12
½	1½	.35	7½	1	4½	2	.15	½	1½	.35	3.48	½	3½	1½	.10
⅜	1¼	.26	.....	...	...	...	.....	⅜	1¼	.26	2.50	¼	3	1	.08

TRANSMISSION AND STANDING ROPE, WITH 7 WIRES TO THE STRAND.

CAST STEEL.							IRON.						
Diameter.	Circumference in Inches.	Weight per foot in lbs. of Rope with Hemp Centre.	Breaking Strain in Tons of 2,000 lbs.	Proper Working Load in Tons of 2,000 lbs.	Circumference of Hemp Rope of equal Strength.	Price per Foot.	Diameter.	Circumference in Inches.	Weight per foot in lbs. of Rope with Hemp Centre.	Breaking Strain in Tons of 2,000 lbs.	Proper Working Load in Tons of 2,000 lbs.	Circumference of Hemp Rope of equal Strength.	Price per Foot.
1½	4¾	3.37	67	16	15	$0.70	1½	4¾	3.37	36.	9	10¾	$0.48
1⅜	4⅜	2.77	55	12½	13	.60	1⅜	4⅜	2.77	30.	7½	10	.39
1¼	3⅞	2.28	45	10	12	.50	1¼	3⅞	2.28	25.	6¼	9¼	.34
1⅛	3½	1.82	36	8	10¾	.40	1⅛	3½	1.82	20.	5	8	.27
1	3	1.50	30	6½	10	.32	1	3⅛	1.50	16.	4	7	.23
⅞	2¾	1.12	22	5	8½	.25	⅞	2⅝	1.12	12.3	3	6¼	.19
¾	2⅜	.88	17	3½	7¼	.19	¾	2⅜	.88	8.8	2¼	5¼	.14
1 1/16	2⅛	.70	13½	3	6½	.16	1 1/16	2⅛	.70	7.6	2	5	.12
⅝	2	.57	10	2¼	5½	.14	⅝	2	.57	5.8	1½	4¾	.10½
9/16	1¾	.41	8	1¾	5	.11	9/16	1¾	.41	4.1	1	4	.08
½	1⅝	.31	6	1¼	4¾	.08	½	1⅝	.31	2.83	¾	3¼	.07
7/16	1⅜	.28	5¼	1⅛	4¼	.07½	7/16	1⅜	.23	2.13	½	2¾	.05½
⅜	1⅛	.19	4	1	3¾	.07	⅜	1⅛	.19	1.65	...	2½	.05
5/16	1	.16	3	¾	3¼	.05	5/16	1	.16	1.38	...	2¼	.04
9/32	⅞	.12	2¾	⅝	2¾	.04½	9/32	⅞	1.25	1.03	...	2	.03½

ORE BUCKET, No. 13.

PRICES.

	Diameter.	Depth.	Bottom.	
Steel ¼ in.	36 in.	42 in.	½ in. Steel.	$70.00
Steel ¼ in.	30 in.	38 in.	½ in. Steel.	60.00

STEEL AND IRON HOISTING TUBS, SELF DUMPING.

These tubs are manufactured of the best steel and iron, by skilled workmen, and all parts fitted in thorough and workmanlike manner. They are so balanced that, when tub is properly filled and the lock released, the load will dump itself and tub return to its upright position. These tubs are made with either side or rear lock. For extra sizes, or tubs with reinforced bottoms, made extra heavy for special purpose, estimates will be furnished upon application.

TABLE OF SIZES, DIMENSIONS, CAPACITY, WEIGHTS, PRICES, ETC.

No. of Size.	Capacity Tub.	Height from bottom to top of bail.	Width over all.	Size Wheels.	Weight Tub. Steel.	Weight Tub. Iron.	Price each.
1	1-8 of a ton	35 in.	28 in.	4 x 2 in.	135 lbs.	155 lbs.	$30 00
2	1-6 of a ton	36 in.	30 in.	4 x 2 in.	150 lbs.	170 lbs.	32.50
3	1-5 of a ton	38 in.	32 in.	4 x 2 in.	160 lbs.	195 lbs.	35 00
4	1-4 of a ton	43 in.	35 in.	4 x 2 in.	190 lbs.	230 lbs.	40 00
5	1-4 heavy	43 in.	35 in.	5 x 3 in.	210 lbs.	250 lbs.	45.00
6	600 lbs. coal	44 in.	38 in.	5 x 3 in.	223 lbs.	275 lbs.	65.00
7	700 lbs. coal	46 in.	42 in.	6½ x 3 in.	290 lbs.	370 lbs.	75 00
8	1120 lbs. coal	53 in.	45 in.	6½ x 3 in.	390 lbs.	480 lbs.	90.00
9	2240 lbs. coal	58 in.	55 in.	6½ x 3 in.	550 lbs.	600 lbs.	150.00

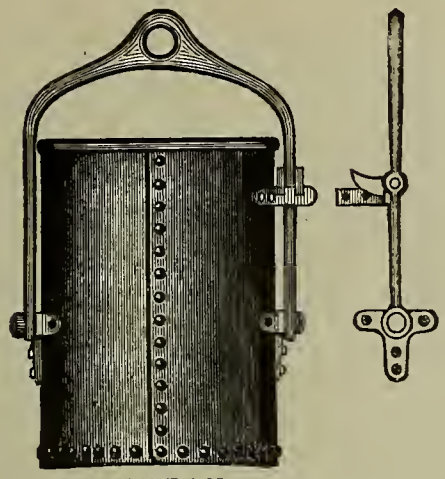
STEEL AND IRON HOISTING TUBS,

FOR EARTH WORK, MINES, COAL YARDS, ETC.

No.	1,	Holding	6	cubic feet of earth or		325	lbs. coal,	$20.00	each.
"	2,	"	7	"	"	575	"	22.50	"
"	3,	"	8	"	"	430	"	25.00	"
"	4,	"	10½	"	"	560	"	30.00	"
"	5,	"	14	"	"	750	"	35.00	"
"	6,	"	17	"	"	900	"	40.00	"
"	7,	"	21	"	"	1130	"	45.00	"
"	8,	"	27	"	"	1450	"	55.00	"
"	9,	"	37	"	"	2000	"	65.00	"
"	10,	"	42	"	"	2260	"	70.00	"

ORE AND WATER BUCKETS.

FOR MINERS, CONTRACTORS AND BUILDERS.



ORE BUCKET No. 11.

WATER BUCKET No. 12.
(With Valve in bottom.)

PRICES.

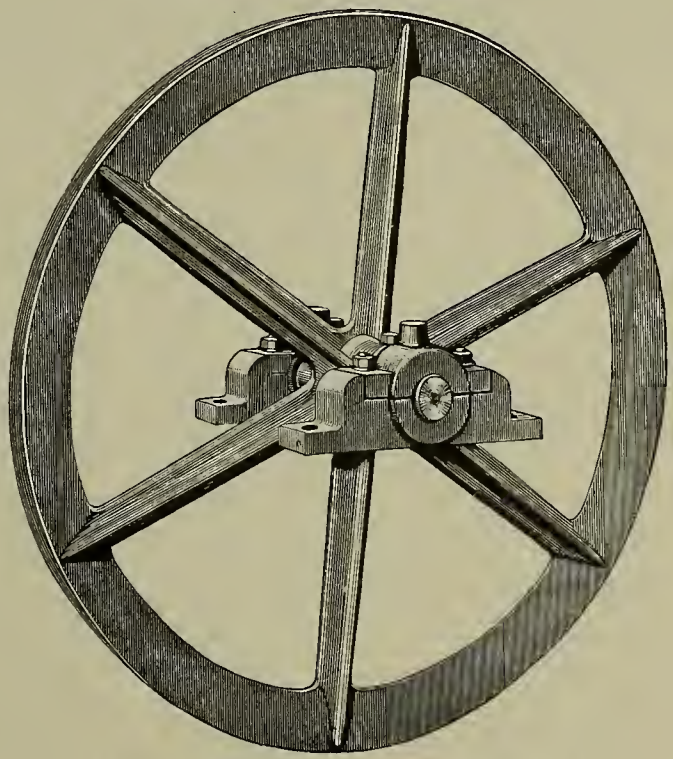
IRON.

Thickness Plate.	Diameter Inches.	Depth. Inches.	Thickness of Iron. Inches.	Price.
$\frac{3}{16}$ in.	24	36	$\frac{3}{16}$	$53.00
$\frac{3}{16}$ in.	30	42	$\frac{3}{16}$	74.00

STEEL.

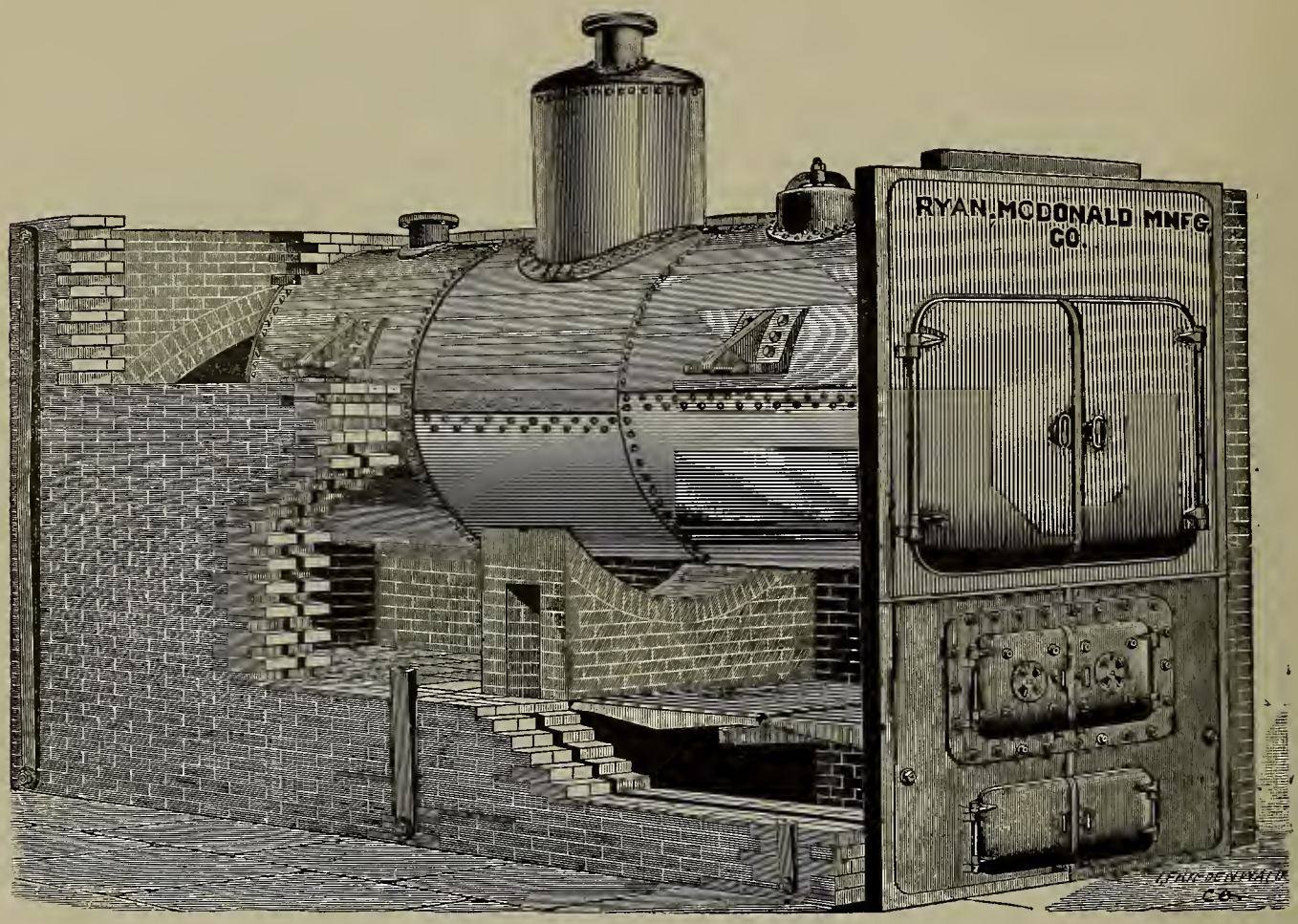
Thickness Plate.	Diameter Inches.	Depth. Inches.	Thickness of Iron. Inches.	Price.
$\frac{3}{16}$ in.	24	36	$\frac{3}{16}$	$64.00
$\frac{3}{16}$ in.	30	42	$\frac{3}{16}$	78.00

SHEAVE WHEELS.



PRICES COMPLETE WITH SHAFT AND BOXES.

Diameter. Inches.	Price, Complete.	Diameter. Inches.	Price, Complete.	Diameter. Inches.	Price, Complete.
12	$ 9.00	30	$26 00	60	$82.00
16	12.00	40	34.00	72	120.00
20	14.00	48	63.00		



STATIONARY HORIZONTAL TUBULAR BOILERS.

We build boilers of the Stationary Return Flue, Stationary Locomotive and Vertical types, as shown on the following pages.

The MATERIAL used is Shell, Flange and Fire-Box Steel, having a tensile strength of 50,000 pounds.

The WORKMANSHIP is first-class in every respect.

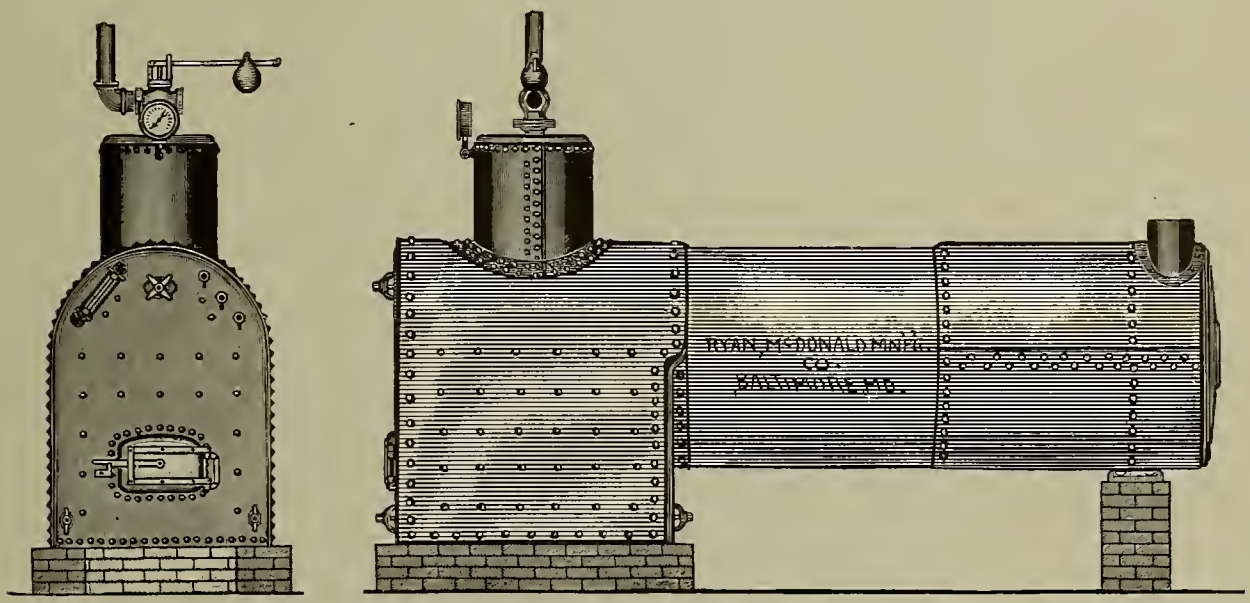
The FITTINGS used are of modern design and from the best makers.

STATIONARY BOILER.

No. of Size	1	2	3	3½	4	5	6	7	7½	8	9	10	11	12	13	14	15
Horse Power	10	12	15	20	20	25	30	35	40	40	45	50	60	70	80	90	100
Diameter of Boiler	30	36	36	36	42	42	44	44	44	48	48	54	60	60	62	64	66
Thickness of Shell	1 4	1-4	1-4	1-4	No. 3	No 3	No. 3	No. 3	No. 3	5-16	5-16	5-16	0	0	3 8	3-8	3-8
" " Main Head	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
" " " Dome Plate	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
" " " " Heads	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Length of Flues	8	7	8	10	8	10	10	12	14	12	14	12	12	14	14	14	14
Number of Flues, 3 inch	20	28	30	32	40	40	48	48	46	56	54	70	84	84	100	114	128
Feet Heating Surface	157	193	237	302	302	388	453	535	617	617	677	760	914	1066	1223	1387	1522
Height of Dome	22	22	22	22	24	24	24	24	24	28	28	30	30	34	36	40	40
Diameter of Dome, in inches	20	20	20	20	22	22	24	24	24	28	28	34	36	36	36	40	40
" " Stack, " "	14	16	16	16	20	20	22	22	22	24	24	26	28	28	30	32	34
Height " " " "	28	24	28	30	28	35	35	40	45	40	50	40	40	50	50	50	50
Weight, complete	3750	4200	4400	5000	5300	6400	7100	7900	8700	9900	10100	10300	12100	13600	14800	16100	17300

PRICES QUOTED ON APPLICATION.

STATIONARY LOCOMOTIVE BOILER.



SPECIFICATIONS OF LOCOMOTIVE BOILER.

No. of Size	0	1	2	3	4	5	6	7	7½	8	9	10
Horse Power	6	8	10	12	15	20	25	30	35	40	50	60
Diameter of Boiler....in inches	36	36	28	30	32	36	38	40	40	44	46	52
Length of Furnace.... "	30	32	36	38	42	48	50	54	56	58	62	66
Width " .... "	22	22	23	25	28	30	32	34	34	36	38	44
Height " .... "	26	26	30	32	34	42	42	42	42	46	50	54
Thickness of Shell outside Fire Box....in inches	1-4	1-4	5-16	5-16	5-16	5-16	5-16	5-16	5-16	5-16	No. 0	No. 0
Thickness of Flue Sheet. "	3-8	3-8	3-8	3-8	3-8	7-16	7-16	7-16	1-2	1-2	1-2	1-2
Length of Flues.... "	56	62	68	79	84	86	98	104	110	112	125	145
Diameter of Tubes.... "	2	2	2 1-8	2 1-8	2 1-8	3	3	3	3	3	3	3
Number of Tubes....	28	30	34	36	36	38	40	48	48	54	60	70
Diameter of Dome.... "	14	14	15	16	18	20	22	24	24	26	28	30
Height " .... "	14	14	16	18	20	20	22	24	24	26	28	30
Diameter of Stack.... "	10	12	12	14	14	16	18	20	20	22	24	26
Length " ....in feet	15	15	20	20	20	24	24	26	30	36	35	35

PRICES QUOTED ON APPLICATION.

VERTICAL TUBULAR BOILER.

This boiler is first-class in every respect; has improved cast-iron base, which is particularly strong and compact.

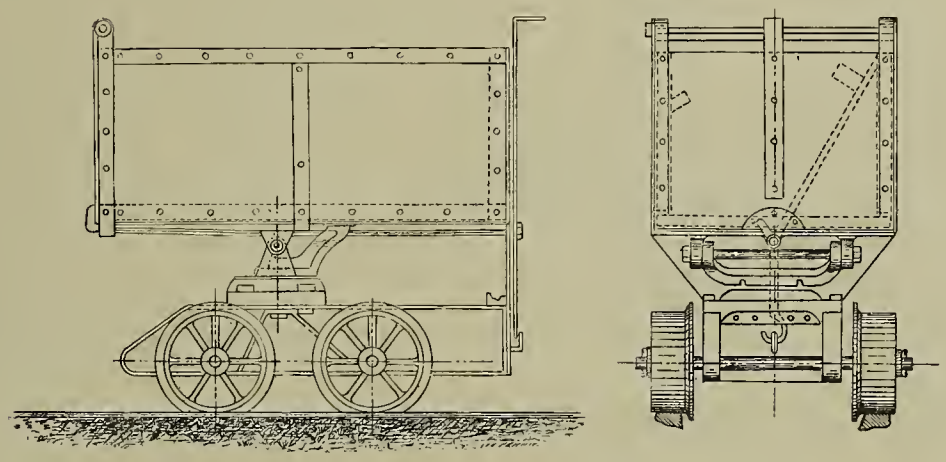
The FITTINGS are of the most modern design from the best makers.

SPECIFICATIONS OF VERTICAL BOILER—FULL LENGTH FLUES.

No. of Size	1	2	3	4	5	6	7	8	9	10	11	12	13	14
Horse Power	3	4	5	6	8	10	12	15	18	20	25	30	35	40
Diameter of Boiler.....in inches	22	.....	26	.....	30	34	36	36	38	40	45	50	52	54
Height " " .....in feet	36	.....	50	.....	60	72	72	78	80	86	96	106	112	120
Diameter of Furnace.....in inches	18	.....	22	.....	26	30	33	33	34	35	40	45	46½	48
Height " " ..... "	14	.....	18	.....	20	26	26	28	28	26	28	30	33	36
Thickness of Sheets..... "	3-16	.....	1-4	.....	1-4	1-4	1-4	1-4	5-16	5-16	5-16	No. 0	No. 0	No. 0
" " Heads..... "	5-16	.....	3-8	.....	3-8	3-8	7-16	7-16	7-16	7-16	1-2	1-2	1-2	1-2
" " Furnace Plates.. "	1-4	.....	5 16	.....	5-16	5-16	5-16	5-16	5-16	5-16	No. 0	No. 0	No. 0	No. 0
Length of Tubes..... "	22	.....	32	.....	40	46	46	50	56	62	68	76	80	84
Number of Tubes, 2″ diam	57	.....	52	.....	60	60	72	72	82	90	116	130	138	146

SMOKE STACK furnished extra.

PRICES ON APPLICATION.



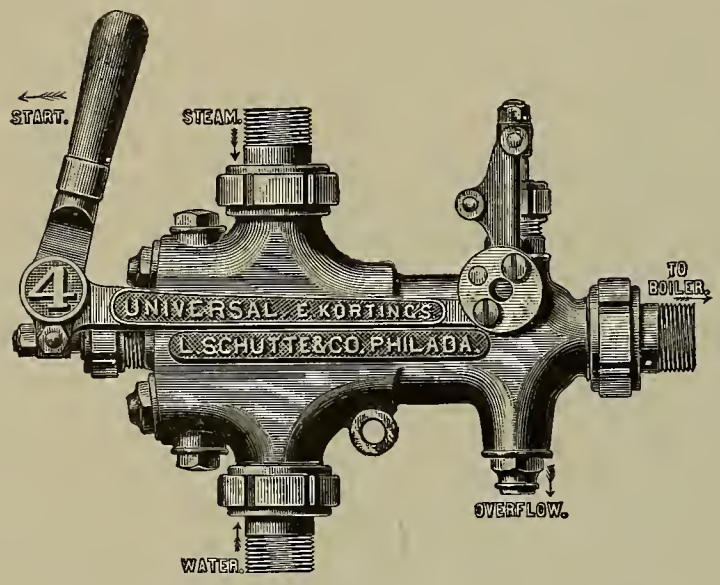
MINE CAR No. 20.

Iron Bodies, Steel Axles, Chilled Wheels. Dump from either side or end.
Any Gauge.

Approximate Capacity in cubic feet.	Prices.
10	$100.00
13	115.00
22	135.00
45	200.00

WRITE FOR DISCOUNT.

BOILER FEEDERS.

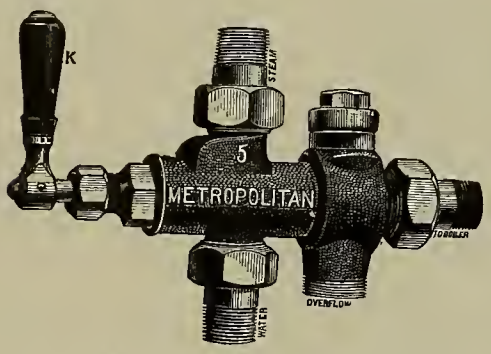


KORTING'S UNIVERSAL DOUBLE TUBE INJECTOR.

PRICE LIST.

Based on Steam Pressure of 60 lbs.

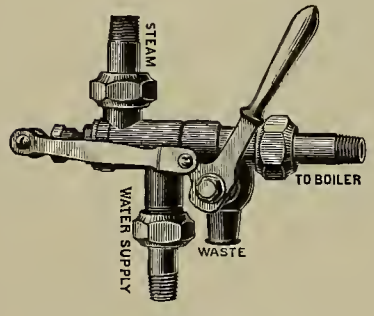
Size, No.	Price of Injector All Brass.	Size of Iron Pipe Connections. Inches.	H. P. or Cubic feet per hour.	Gallons per hour.
00	$20.00	⅛	5	37
0	21.00	¼	12	90
1	23.00	⅜	16.5	124
2	28.00	½	25	187
3	38.00	¾	39	292
3½	46.00	¾	57	427



THE METROPOLITAN AUTOMATIC INJECTOR.

PRICE LIST.

Size.	Price.	Size of Pipe Connection.	Gallons per Hour 65 lbs. Pressure.	Horse-Power.
2	$15.50	⅜	40	4 to 6
3	16.00	⅜	60	6 to 8
3½	18.00	½	90	8 to 12
4	20.00	½	120	12 to 16
5	25.00	¾	220	16 to 28
6	30.00	¾	300	28 to 40
7	40.00	1	420	40 to 57



EXCELSIOR BOILER FEEDER.

PRICE LIST.

No. of Injector.	Size of Connections.		H. P. Boiler.	Gal. per hour 60 lbs. Steam Pressure.	Price.
	Suction and Feed.	Steam Line.			
1	⅜	⅜	2½ to 6½	60	$16.00
2	⅜	⅜	6½ to 10	90	18.00
3	½	½	10 to 18	150	22.00
4	½	½	18 to 25	220	25.00
5	¾	¾	25 to 35	300	30.00
6	¾	¾	35 to 45	400	35.00
7	1	¾	45 to 60	500	40.00

WRITE FOR DISCOUNTS.

BOILER AND ENGINE FITTINGS.

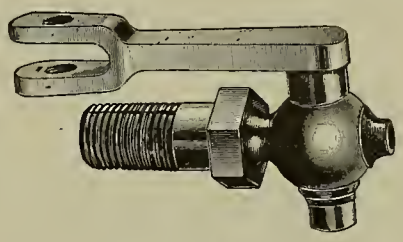
STEAM WHISTLE.

PRICES.

Length Bell.	Diameter Bell.	Size Pipe Connection	Price.
4¾	2	½	$4.60
5½	2½	¾	6.00
6¼	3	1	7.00
8¼	4	1	12.50

WATER GAUGE.

Price, Screwed for ½ in. Pipe, Glass ⅝ in. x 12 in. $3.00

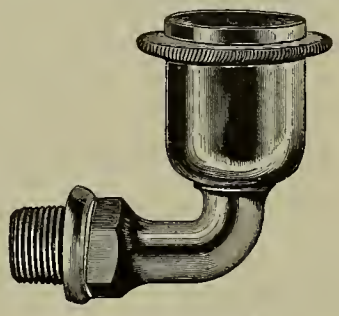


CYLINDER COCK.

Price, ¼ in. Thread, $1.45.

PLAIN OIL CUP.

Size Shank.	Diameter Bowl.	Price.
¼ in.	1 in.	$ .40
¼ in.	1½ in.	.90
¼ in.	1¾ in.	1.25



ELBOW OILER.

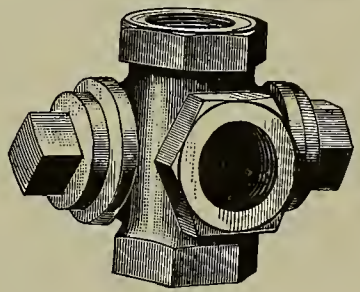
Price, 1¼ in. Bowl, ¼ in. Shank, $1.00.

GLASS OIL CUP.

PRICES.

Size Bowl.	Price.
1¼ in.	$1.10
1½ in.	1.35
1¾ in.	1.60

Shanks all ¼ in.



THREE WAY EXHAUST COCK.

IRON.

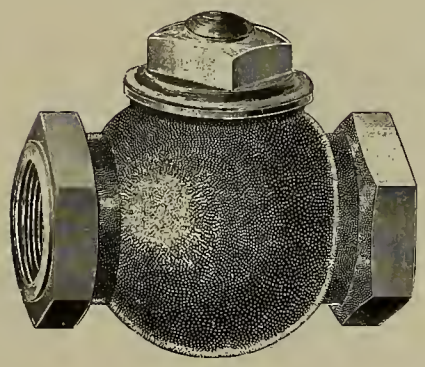
Size.	Price.	Size.	Price.
1¼ in.	$1.30	2½ in.	$4.00
1½ in.	1.75	3 in.	5.50
2 in.	2.50		

BOILER AND ENGINE FITTINGS.

BRASS ANGLE VALVE.

PRICES.

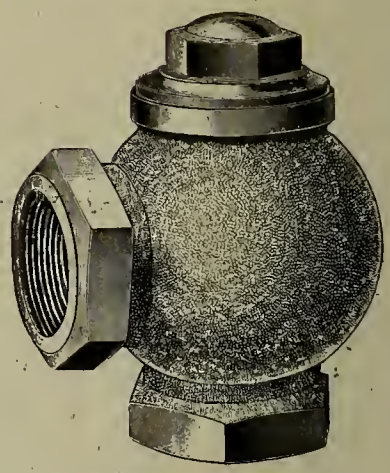
½ in.	$1.00
¾ in.	1.35
1 in.	1.80
1¼ in.	2.80
1½ in.	3.90
2 in.	5.90
2½ in.	11.25

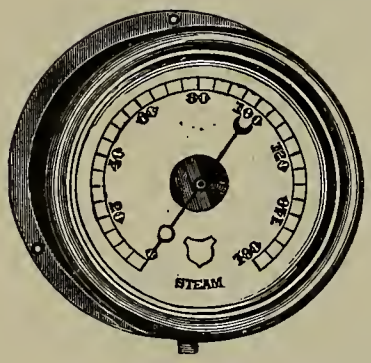


BRASS HORIZONTAL AND ANGLE CHECK VALVES.

PRICES.

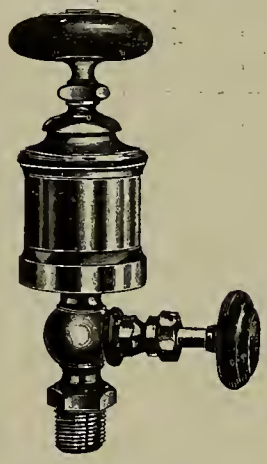
½ in.	$ .85
¾ in.	1.15
1 in.	1.55
1¼ in.	2.30
1½ in.	3.25
2 in.	5.20
2½ in.	10.00





STEAM GAUGE.

Size.	Price.
5½ inches, with Iron Case,	$5.00
5½ inches, with Brass Case,	10.00



CYLINDER OIL CUP.

Size.	Price.
1 in.	$2.00
1¼ in	2.20
1½ in.	2.40
1¾ in.	2.90
2 in.	2.90
2¾ in.	3.25

COMPRESSION GAUGE COCK.

Size.	Price.
¼ in.	$1.10
⅜ in.	1.20
½ in.	1.35
¾ in.	1.75

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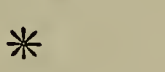

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